Higher Ed Cloud Community

The higher education cloud computing community is an active, thriving, sharing conversation between schools, community partners and individuals. This community focuses on the infrastructure (IaaS) and platform as a service (PaaS) ecosystems. It is built for higher ed, by higher ed. We welcome all to participate with an understanding that the goal is to promote the most secure and efficient use of cloud computing in support of the mission of our institutions. While we welcome the cloud vendors to participate in the debate and sharing of information it is *never* to be used for sales.

As the use of hyper-scale computing at community colleges, colleges and universities grows, so do the questions, challenges and lessons learned by each of us. Efforts to share those challenges and lessons and to ask those questions are also growing. This site attempts to bring together those conversations and the resources they produce in the hope that you will engage and encourage your colleagues to engage. Together we will raise our institutions' collective CloudIQ.

Resources

- Higher Ed Cloud Community Events Calendar
- Higher Ed Cloud Computing Scholarship
- Higher Ed and General AWS Resources
- Higher Ed and General GCP Resources
- Higher Ed and General MS Azure Resources

Community Cloud Conversations

Conversation	Description	Contacts	Notes

EDUCAUSE Cloud Computing Community Group (**CCCG**)	The Cloud Computing Community Group provides participants with the opportunity to learn about and discuss the challenges and opportunities associated with the adoption of cloud computing in colleges and universities. Examples of discussion topics include cloud contract negotiation and management, cloud vendor relationship management, IT service management practices, compliance and legal issues, data privacy and security considerations, cloud identity and access management, cloud service integration (cloud to cloud and cloud to on-premise), skills and staffing implications, and cloud use cases to enable institutional agility, efficiency, and innovation. This group meets virtually every month, in person at the EDUCAUSE Annual Conference and uses its list and Slack workspace to discuss issues throughout the year.
	
	The Cloud Computing Community Group and Internet2 have long partnered to cultivate the cloud computing conversation in higher education. Beginning with the *EDUCAUSE/Internet2 Joint Cloud Working Group*, Internet2 has provided infrastructure and logistical support to the CCCG. Internet2 hosts the CCCG monthly calls and their meeting artifacts as well as the Higher Ed Cloud Wiki.
	
	Monthly meetings
	
	• **Format:** Alternate between presentations one month to open discussion the next
	• **When**: Occurs the fourth Wednesday of the month at 9am PT/12pm ET.
	• **Where**: https://internet2.zoom.us/j/91519802344
	• **Running Agenda/Notes**: https://tinyurl.com/EDUCAUSE-CCCG
	• **Download calendar invitation:** https://drive.google.com/file/d/1NuRKDAq5a7wdudAzTgwxkCnyikEbTxwG/view?usp=sharing (Note for Google Calendar Users: Download the .ics file. Go into the Settings inside Google Calendar. Select Import and navigate to the downloaded .ics file. It should import it into your calendar.)
	• **2024 dates/times**:
	  ◦ Jan 24, 2024 12:00 PM Eastern Time (US and Canada)
	  ◦ Feb 28, 2024 12:00 PM
	  ◦ Mar 27, 2024 12:00 PM
	  ◦ Apr 24, 2024 12:00 PM
	  ◦ May 22, 2024 12:00 PM
	  ◦ Jun 26, 2024 12:00 PM
	  ◦ Jul 24, 2024 12:00 PM
	  ◦ Aug 28, 2024 12:00 PM
	  ◦ Sep 25, 2024 12:00 PM
	  ◦ October meeting in person at EDUCAUSE Annual. Date/time TBA.
	  ◦ Dec 4, 2024 12:00 PM (combined Nov/Dec meeting to navigate holidays and conferences)
		CCCG co-chairs: cccg-leads@lists.berkeley.edu (term ends)
		
		• Kari Robertson - UCOP kari.robertson@ucop.edu (2024)
		• Niranjan Davray - Colgate ndavray@colgate.edu (2025)
		• Phil Fenstermacher - William & Mary pcfens@wm.edu (2026)
		
		Internet2 staff support:
		
		• Bob Flynn bflynn@internet2.edu
		• Sean O'Brien sobrien@internet2.edu
			CCCG EDUCAUSE Page
			
			Join the CCCG Slack Workspace
			
			Join the CCCG mailing list

Higher Education Cloud Forum (**CF**)	The Cloud Forum is an annual gathering hosted by the higher ed cloud crowd that began at Cornell University in 2015. This event brings together the IT professionals who manage cloud computing at many of the top research and education institutions around the country. Attendance is strictly limited because we gather in a single auditorium-style classroom. Thanks to the intimate setting and higher education IT's history of sharing, the conversations are candid, productive and often quite entertaining. We share successes, failures and lessons. We challenge our peers with the problems we are facing in hopes of tapping the wisdom of the crowd. The event is for higher education, by higher education. We invite the cloud computing vendors most widely used by higher education to send representatives, but they do present. They are there to listen and learn about higher ed's cloud challenges. After 2021 the Cloud Forum left its nest and hit the road with the assistance of Internet2. The 2022 Cloud Forum was held at Washington University in St. Louis and 2023 will be at Emory University in Atlanta. For details see: https://internet2.edu/cloud-forum.	• Bob Flynn – Chair bflynn@internet2.edu	**Higher Ed Cloud Forum**
Internet2 Events (**I2**)	Webinars, workshops, training sessions, and community gatherings all fit within our mission of supporting and expanding the community. Internet2 works to convent the community to help institutions and colleagues share solutions and best practices. These include • I2 Online (**I2O**) - A series of webinars to showcase the community's work and share knowledge around cloud technologies to help facilitate their use in the research and education community. • Internet2 Community Building (**I2**) - Community convening with the goal of tackling cloud technology challenges together. • NET+ (**I2 NET+**) - Meetings, Town Halls, and other discussions that take place as part of the Internet2 NET+ program for subscribers that are opened up for the broader community or have the recordings posted afterwards.	• Bob Flynn bflynn@internet2.edu	**View upcoming or suggest event topics**
Organic Community Topics (**COMM**)	Anytime a conversation is taking place that would benefit from the involvement of that organization's peers in the higher ed cloud community, we will try to share it here. That could be a request from a number of schools to have another school share what they are doing or one school might have invited a cloud provider in for a demonstration. Whatever the case, if it is information sharing and collaboration at its core (rather than sales) we welcome its inclusion here.		

Upcoming/Past Events

Click  **in the right column for meeting assets (slides, recordings, etc.)**

2024				
Date	**Title**	**Description**	**Speaker**	**Meeting Assets**
3/27 /2024	CCCG Monthly Call - **Modernizing Legacy Architectures in the Cloud**	The APTrust is a digital preservation consortium that operates under the University of Virginia Library. They provide a dark archive preservation service for consortium members through custom developed SaaS offerings, which allows members to deposit content and manage their preservation repos across multiple cloud storage locations. In addition, they develop tools to help support member depositing needs. Since inception, APTrust has operated 100% in the Public Cloud, starting on AWS, and is now moving to a multi-cloud environment	• Falvia Ruffner, APTrust (UVA) • Andrew Diamond, APTrust (UVA)	**CCCG** 
2/28 /2024	CCCG Monthly Call - **Gen3: Advancing Biomedical Research in the Cloud**	The cloud can be a complex and daunting environment for biomedical researchers. Data platforms, in particular, can be difficult to manage, especially at scale. To solve this problem, the University of Chicago CTDS developed Gen3, an open source cloud-native platform. In this presentation we'll discuss how is CDTS architecting Gen3 to run anywhere, what challenges have they faced supporting adoption, and the challenges of using cloud for biomedical research. • **When**: Occurs the fourth Wednesday of the month at 9am PT/12pm ET. • **Where**: https://internet2.zoom.us/j/91519802344 • **Running Agenda/Notes**: https://tinyurl.com/EDUCAUSE-CCCG • **Download the meeting invitation**	• Jawad Qureshi – University of Chicago	**CCCG** 

1/24 /2024	CCCG Monthly Call - **Implementing Cloud Security**	• Are you new to Cloud and want to start off with a secure framework that scales as you grow? • Are you nervous about the Security of your current Cloud footprint? • Are you confident in your Cloud Security, but looking for ways to make your framework even stronger? If any of these questions apply – this meeting is for you! We have an exciting meeting to start off 2024 with two excellent presentations focused on implementing Cloud Security in a scalable and supportable manner. • **Creating and Managing Secure Research Engagements** | Heather Mitchell – Associate Director of Cloud Services and Allen Karns – Principal Cloud Solutions Architect, Vanderbilt University • **Cloud Security by Default** | George Holbert - Sr. Cloud Engineer and Matt Stout - Cloud Architect, University of California Office of the President • **When**: Occurs the fourth Wednesday of the month at 9am PT/12pm ET. • **Where**: https://internet2.zoom.us/j/91519802344 • **Running Agenda/Notes**: https://tinyurl.com/EDUCAUSE-CCCG • **Download the meeting invitation**	• Heather Mitchell – Associate Director of Cloud Services, Vanderbilt University • Allen Karns – Principal Cloud Solutions Architect, Vanderbilt University • George Holbert - Sr. Cloud Engineer, University of California Office of the President • Matt Stout - Cloud Architect, University of California Office of the President	**CCCG**

2023

Date	Title	Description	Speaker	Meeting Assets
12/6 /2023	CCCG Monthly Call - **Monitoring in the Cloud**	Monitoring complex systems anywhere can be complicated and it can be that much more difficult in a hybrid world. In this session we'll hear from 2 schools about their monitoring stacks and how it helps them work in the cloud (and on-prem). Lehigh University is using the Elastic stack and The University of Florida uses the Grafana/Prometheus stack. After a brief presentation we'll have time for an open discussion on monitoring in the cloud.	• James Monek – Lehigh University • Eli Ben-Shoshan – University of Florida • Nicholas Cecere – University of Florida	**CCCG**
11/15 /2023	NET+ AWS Quarterly Strategy Call - **How Athletic Departments can use the Cloud to gain an advantage**	Athletics departments are swimming in data - photos, videos, ticket sales, demographics, player stats and more. Much of these data are siloed, often trapped in servers sitting under desks. What if that data could be gathered together and analyzed to improve player success, team outcomes, engage fans and alumni, and improve the bottom-line? Join us to learn how the University of Pittsburgh is using AWS to create Fan360 - a database to better understand their university's fanbase, improve marketing, better target alumni outreach, and increase ticket sales.	• Joe Mulford - Amazon • Richard Turnquist - Univ of Pittsburgh • Chad Burton - Univ of Pittsburgh • Brian Pasquini – Univ of Pittsburgh	**I2**
11/7 /2023	NET+ GCP Quarterly Town Hall - **HPC on CGP**	Google Cloud provides a comprehensive and highly capable platform for scientific and high performance computing. In this session we will provide an overview of the platform, its unique capabilities as well as the partner ecosystem Google has built. Furthermore, we will discuss the substantial impact the platform can have on computationally-driven research across a variety of scientific domains.	• Volker Eyrich – Google	**I2**
10/10 /2023	**CCCG Annual In-person Meeting**	CCCG October Meeting to be held at EDUCAUSE Annual Conference 2023 Cloud Computing Community Group (CG) Meeting (Open to All) Tuesday, October 10 | 11:15AM–12:00PM CT | W192A, LEVEL 1 Join this discussion on the challenges and opportunities associated with cloud computing. Topics will include contract negotiations, vendor relationship management, compliance and legal issues, data privacy and security considerations, identity and access management, service integration, skills and staffing implications, and cloud use cases that enable institutional agility, efficiency, and innovation. https://events.educause.edu/annual-conference/2023/agenda/cloud-computing-community-group-meeting	• Niranjan Davray - Colgate • Damian Doyle - UMBC • Community members	**CCCG**
9/27 /2023	CCCG Monthly Call - **Supporting Researchers in the Commercial Cloud**	This month's meeting will be a joint meeting between the Cloud Computing Community Group and Research and Data Community Group. Both communities will join the call to learn about supporting researchers in the commercial cloud. We have 3 panelists lined up to discuss their experiences, challenges, and success in assisting researchers using the cloud for their research. Community members will have a chance to ask questions or share their experiences as well.	• Cyd Burrows-Schilling - University of California San Diego • Brian Pasquini, University of Pittsburgh • Circe Tsui, Emory University	**CCCG**

8/23 /2023	CCCG Monthly Call - **End-of-Summer /Back-to-School Open Discussion**	This month's Cloud Computing Community Group will be an open discussion session. As we begin to welcome students back to campus and wrap up our summer projects, let's hold an open discussion session. Talk about exciting projects you did over the summer with cloud computing, what's on the horizon for the fall semester, and anything interesting with cloud computing you want to speak about. Bring your challenges and your problems, well, only your cloud problems. Most importantly, be there and ready to talk. Our co-chairs will be there to help coordinate the discussions, take notes, and keep the conversations flowing.		**CCCG** 
7/26 /2023	CCCG Monthly Call - **Automated Transcription for Social Science Researchers**	Social science researchers frequently need audio recordings transcribed for analysis. However, third-party software and services often present both technical and security challenges. In this session a team from Indiana University will discuss the motivation and the technical implementation of the Automated Transcription Service (ATS). This simple and 100% serverless solution leverages cloud machine learning (ML) APIs and other cloud services to provide convenient and secure transcription capabilities for social scientists.	• Prof. Emily Meanwell, IU • Philip Berg, IU • Alan Walsh, IU	**CCCG** 

6/28 /2023	CCCG Monthly Call - **Cloud Forum Redux | FinOps Style**	Contrary to on premise infrastructure, one cannot simply 'set it and forget it' in the cloud as resources are billed by the hour (or minute!). Out of this paradigm, came a new specialty for IT folks – FinOps (Cloud Financial Management). This month we have wonderful speakers featured at Cloud Forum 2023 presenting on their experience developing and managing FinOps. The number one cloud comment I get from Executives, "I hear everything is much more expensive in the cloud". My response, "Not if managed correctly". Please join us to learn FinOps tips and tricks from renowned higher ed experts.
		• Maggie Spangenberg "Developing FinOps at UT Austin"
		  ◦ *UT Austin will share their FinOps journey from initial cloud exploration to exponential growth. UT's processes needed to evolve as cloud spend went from nothing to over $1M annually. UT is planning to show dashboard visualizations that allow departments across campus to see their current spend, cost optimization opportunities, and usage data. There are also internal processes for tagging cloud resources and billing back to departments for recovering spend.*
		• Jonathan White "Tag, You're It!"
		  ◦ *Has someone asked you what your university is spending in the cloud? If not, they will. One of the first steps to answering this question is tagging your cloud resources. UCF recently finished a major infrastructure tagging project and this presentation will highlight the steps we took to implement tagging across Azure, AWS, and eventually, Google Cloud. Using documentation from these cloud providers, we developed a multi-step project plan around discovery, design, remediation, and governance. We will share this plan, best practices, lessons learned, pain points, and provide step-by-step guidance so that you'll be ready to implement tagging at your university.*
			• Maggie Spangenberg, UT Austin
			• Jonathan White, UCF
				CCCG 

6/20 /2023	**SkyPilot Webinar**	SkyPilot is an open-source framework from UC Berkeley that enables users to run Machine Learning and Data Science batch jobs seamlessly on any cloud, reduce cloud costs substantially, tap into best-in-class hardware on different clouds, and enjoy higher resource availability. In the webinar, we will introduce the concept of SkyPilot and show demos of how to easily launch jobs on any cloud with SkyPilot.	• Rob Fatland, University of Washington • Zhanghao Wu, UC Berkeley	**COMM** 
5/24 /2023	CCCG Monthly Call - **Using the Public Cloud for Teaching & Learning**	This month will feature panelists from our community that have used cloud for teaching and learning. Some have taught cloud in the classrooms, while others have supported faculty in using cloud in their courses. Our panelists will share their experiences, what has worked, what didn't, tips, and tools/services from our partners such as AWS, Azure, and Google to assist with teaching and learning. • **When**: 9am PT/12pm ET • **Where**: https://internet2.zoom.us/j/91519802344 • **Running Agenda/Notes**: https://tinyurl.com/EDUCAUSE-CCCG	• Lucrecia Boswell - Stanford University • Jim Charters - University of Michigan • Jeremy Miller - Kentucky Community & Technical College System • Dan O'Brien - George Mason University • Amanda Tan - Internet2 • Alan Walsh - Indiana University	**CCCG** 

5/11 /2023	**Live from the Higher Ed Cloud Forum 23**	**1. Developing FinOps at UT Austin** UT Austin will share their FinOps journey from initial cloud exploration to exponential growth. UT's processes needed to evolve as cloud spend went from nothing to over $1M annually. UT is planning to show dashboard visualizations that allow departments across campus to see their current spend, cost optimization opportunities, and usage data. There are also internal processes for tagging cloud resources and billing back to departments for recovering spend. **2. Moving Faster With the Cloud Everywhere** Moving applications to the public cloud can be daunting. There are years of organic growth that need to be unwound, staff to train, project plans to write, and new architectures to design. To ease the pain William & Mary chose to adopt cloud concepts and best practices in our on-premise operations before any significant migrations. In this presentation, we'll talk about what changes we made, how they prepared us for cloud migrations, and how it continues to make hybrid operations easier (because we still have a network on-campus to run). We'll close with a brief case study of how the single mode of operation made moving our student information system to the cloud trivial and nearly transparent to our users. • **When:** 10:30 am PDT / 1:30 pm EDT (duration 1 hour) • **Register:** https://internet2.zoom.us/webinar/register/4816782240740 /WN_OTUN3E3wT9uwpe3ZXtcAjA	• Maggie Spangenberg, The University of Texas at Austin • Phil Fenstermacher, William & Mary	**CF & I2** 
5/3 /2023	Infrastructure & Platform Services - Search for good tooling: **RONIN for Researchers - Simplifying the Cloud**	In 2021 Internet2 NET+ Infrastructure & Platform Services program manager Bob Flynn put out a call to the community to identify the greatest areas of need for tooling to help them run the major cloud platforms at scale at their institutions. That call included a survey and that survey resulted in our 2022 exploration and ultimate agreement to create a higher ed Kion program. This year we are moving down the list of survey results to revisit RONIN. Please join us for a fresh look at RONIN and help us assess community interest in a NET+ RONIN agreement. ~~~~~~~~~~~~~~~~~~~~ **Description:** Researchers venturing more and more into using cloud computing and commercial cloud vendors. Many of them do not have experience with system administration or managing cloud services. This can present a challenge to groups who do not have the capacity to hire a cloud specialist to manage infrastructure for them and may lead to less utilization of cloud services. Over the last few years, the Advanced Research Computing (ARC) team at the University of British Columbia (UBC) has explored various cloud platforms and solutions to help UBC researchers harness the power of the public cloud and enhance their computing capabilities. Our journey with RONIN started in January 2020 with an in-person demo of the RONIN platform. We transitioned our successful RONIN Platform pilot to being the first University in North America to use RONIN as a full-service cloud offering to the UBC research community. We will briefly discuss what ARC is and our role at UBC. Our researcher community and the challenges faced with public cloud using the user interfaces on current cloud providers. We will share our experience with RONIN and demonstrate a live demo of what a researcher just starting out will experience on RONIN and what it takes to set up their workflow in a cloud environment. • **When**: 1 pm PDT / 4 pm EDT (duration 1 hour) • **Register**: https://internet2.zoom.us/webinar/register/7016811340028 /WN_gq5BpDRoRqGfRggBuAYfkA	• Bob Flynn, Internet2 • Ken Bigelow, UBC • Nathan Albrighton, RONIN	**I2** 
4/26 /2023	CCCG Monthly Call - **Automating AWS Orgs and Control Tower**	If you are using AWS and have struggled to figure out how to manage your org(s), manage your Control Tower, balance automation and manual processes, then you will want to check this out. Kelly Rivera, Lead Cloud Engineer, University of Wisconsin Madison, knows this stuff cold and has gone down all the rabbit holes that the rest of us merely peek over the edge of. She will share her hard-won wisdom with the community. • **When**: 9am PT/12pm ET • **Where**: https://internet2.zoom.us/j/91519802344 • **Running Agenda/Notes**: https://tinyurl.com/EDUCAUSE-CCCG	• Kelly Rivera, Lead Cloud Engineer, University of Wisconsin Madison	**CCCG** 

3/22 /2023	CCCG Monthly Call - **Cloud Teams**	**Cloud Teams | Higher Ed Models** This month we will cover a heavily discussed topic in the cloud space – Cloud Teams. As you build in the cloud, you need someone designated to properly maintain workloads. Is that a team of one, a brand-new team, or a team of existing staff that are working in a hybrid environment? What roles make a successful Cloud Team? How are responsibilities divvied up? How do you get folks trained? When is the best time to formally establish a Cloud Team? Join us to explore different Cloud Team models with our esteemed panelists • **Time:** 9am PT/12pm ET • **Location**: https://internet2.zoom.us/j/91519802344	• Chris Manly | Cornell University – Assistant Director of Cloud and Infrastructure Services • Jonathan White | University of Central Florida – Cloud Infrastructure Strategist • Kevin Willey | Bucknell University - Executive Director Enterprise Technologies • Michael Benedetto | American Museum of Natural History – CISO and Deputy CIO	**CCCG**
3/1 /2023	NET+ Kion Webinar - **Achieving Multi-Cloud Control and the Freedom to Innovate**	Whether your institution is starting on its cloud journey and you're balancing innovation and sustainability, or you are trying to bring some order to years of organic experimentation, it requires practices, planning, and tooling to manage a multi-cloud environment. In this session, we'll hear from Washington State University and Princeton University as they share their progress on the cloud adoption path and how they are tackling the challenge of ensuring control while providing freedom to users to innovate. NOTE: Both speakers will be talking about the role that Kion plays in these efforts. • Post-meeting assets (recording, slides, etc.)	• Bill Bonner, Director of Network and Cloud Engineering, Washington State University • Mark Ratliff, Director for Cloud Infrastructure Services, Princeton University	**I2**
2/22 /2023	CCCG Monthly Call - **Enhancing Public Health Infectious Disease Genomics through Cloud Computing**	Infectious disease genomics is a rapidly changing field within public health. The increased need for genetic characterization during the SARS-CoV-2 pandemic combined with newly emerging sequencing technologies has led to a wide adoption and application of sequencing approaches across public health laboratories. This in turn has created a need for compute environments that can handle complex bioinformatics workflows and scale to meet a growing need. The Wisconsin State Laboratory of Hygiene (WSLH) has adopted a Cloud based approach that leverages AWS services to build a highly reliable infrastructure that is both cost effective and highly scalable. When combined with Nextflow pipelines utilizing Docker containers the result is a highly reproducible production analysis environment that is capable of supporting a variety of public health goals including infectious disease surveillance and outbreak investigations. • **Time:** 9am PT/12pm ET • **Location**: https://internet2.zoom.us/j/91519802344	• Dr. Kelsey Florek, Professor of Genomics, Data Science, and Public Health, UW-Madison	**CCCG** **Slides**
2/15 /2023	NET+ AWS Town Hall: **Transform Genomic and Biological Data Into insights with AWS Omics**	Amazon Omics helps healthcare and life science organizations and their software partners store, query, and analyze genomic, transcriptomic, and other omics data and then generate insights from that data to improve health and advance scientific discoveries. Learn how Amazon Omics provides scalable workflows and integrated tools for preparing and analyzing omics data and automatically provisions and scales the underlying infrastructure so that you can spend more time on research and innovation. Amazon Omics supports large-scale analysis and collaborative research. This session is for research decision-makers, researchers, and RCD team members who want to learn how Amazon Omics can accelerate research, support large-scale analysis, and generate insights to improve health and advance scientific discoveries. • **Time:** Wednesday, Feb 15, 11am PST/2pm EST • **Registration:** https://internet2.zoom.us/webinar/register/1716734475521/WN_eZgYTCK8TGiBxiEHbfF_3A	• Lee Pang, Principal Solutions Architect, Health AI at AWS	**I2**
2/7 and 2/9 /2023	**Stanford Technology Platform Assessment and Strategy Peer Discussion**	Stanford is currently underway with an initiative to evaluate our IT Portfolio to review drivers, governance, funding, and strategies being used to inform thoughtful cloud deployment models. As part of this effort, we would like to learn from our peers, by collecting data in the form of the questions found in this sheet. Please take a moment to provide your input. While data is being collected, we will be scheduling two one-hour meetings (February 7, 9 12pm ET) for open dialog and collaboration. I am happy to share the methodology, recommendations and results of this effort with those that are interested. • **Time:** Tuesday Feb 7 AND Feb 9 (two options to attend) 9am PT/12pm ET • **Location**: https://stanford.zoom.us/j/96042520479?pwd=OS90ekVPMmlqaktaTEhGUVNpaFB0QT09	• Lucrecia Kim-Boswell	**COMM**

2/6 /2023	CCCG Special Presentation : **RNP Presentation on MultiCloud & DevSecOps**	The CCCG will be hosting a special presentation on **Monday, February 6th, 2023 9am PST /12pm EST**. Rede Nacional de Ensino e Pesquisa (RNP) is the Brazilian national research and education network (NREN), roughly equivalent to the role Internet2 plays in the US. Not only do they provide secure and high-capacity internet, but they do targeted development services and support innovative projects to further the social good. Their system includes universities, educational and cultural institutes, research agencies, teaching hospitals, parks and technology centers. With this, they benefit 4 million Brazilian students, teachers and researchers. Seven years ago, when RNP started to work with public cloud, they had a very traditional dev team. Their applications ran on premises and they had very little automation in their development processes. They started to lift & shift systems to the cloud but they did not feel they were really reaping the benefits of the public cloud or of DevSecOps practices. They found it difficult to become a “Cloud Native / DevSecOps” Organization. It took 4 years and an iterative process to transform themselves into a cloud-savvy, DevSecOps-practicing, actively-learning organization. They would like to share their journey, how they operate now, and the impact these changes have had on their work. In addition to the lessons learned along the way, they will discuss the tools they have developed to support their work and use cases they have applied them to.	• Sergio Leal, Head of Solutions Architecture (RNP)	**CCCG** 
1/25 /2023	CCCG Monthly Call - **Getting started with the cloud (Best Practices)**	Hear stories from our panelists on getting started in the cloud. Panelists will discuss their cloud journey, lessons learned, what they would do if they had to do it again, and offer some guidance for our community. Afterwards, we will discuss the formation of a Cloud Best Practices Working Group and will seek volunteers from our community. • **Time**: Wednesday, 1/25 at 9am PST / 12pm EST • **Location:** https://internet2.zoom.us/j/91519802344	• Rick Rhoades (Penn State University) • Shelley Rossell (Univ of Chicago) • Bill Thompson (Lafayette) • Kevin Willey (Bucknell University)	**CCCG**  **Running notes**

2022

Date	Title	Description	Speaker	Meeting Assets
12/14 /2022	CCCG November /December Monthly Meeting - **Review of EDUCAUSE 2022, Cloud Forum 2022, and I2 Technology Exchange 2022**	As we look forward to the new year, your co-chairs are starting to think about 2023 and what our priorities are for the CCCG. Please join us to review and discuss the various conferences in the fall. What were your takeaways? Any sessions worth bringing to the larger community? This will be an opportunity for all our community members to provide feedback for the coming year? What's working? What's not? Trends we should be focusing on?	• Niranjan Davray • James Monek • Kari Robertson	**CCCG**  **Running notes**
11/30 /2022	**AWS Control Tower in Higher Education**	Please join a discussion about Control Tower in Higher Ed. We’ll focus on the main differences and gotchas for higher ed vs. standard deployments and talk about starting fresh with CT or bringing it into an Org with existing accounts. ◦ **Time**: Wednesday, 11/30 at 1pm PST / 4pm EST ◦ **Recording: https://drive.google.com/drive/folders /1ouDedcyeR2iR5nxaf2Ldl_aut4fjEjiM?usp=share_link**	• Bob Flynn, Internet2 • All of you!	**I2** 

11/16 /2022	**NET+ AWS Discussion - The Role of Cloud in Institutiona l Resilience**	• **Description**: The last two years have demonstrated the unique role hyper-scale, on-demand computing in keeping the institution operational when faced with unexpected circumstances. A recent EDUCAUSE QuickPoll on institutional resilience prompted the question of the part cloud computing should, and shouldn't, play in your organization's resilience planning. Invite your leadership to join leaders from our community to discuss how, where and when we should be thinking about these powerful tools. • **Audience**: Strategic IT thinkers and decision makers – CIOs, AVPs and Directors of Infrastructure, Cloud Enablement Managers	• Damian Doyle, Deputy CIO, UMBC • Patrick Frontiera, Senior Business Development Manager, Higher Ed, AWS • Rick Rhoades, Chair, NET+ AWS SAB and Manager, Cloud Services, PSU • Kari Robertson, AWS Education Champion, CCCG Co-Chair, Executive Director of Infrastructure Services at UCOP • Bob Flynn, Internet2 (moderator)	**I2 NET+**

11/11 /2022	**Higher Ed Cloud Forum**	The 2022 Cloud Forum was held at Washington University in St. Louis. Each day portions were made available live. Today's content included:
		• **Presentations**:
		  ◦ Embracing Enterprise Architecture to Drive New Cloud Value
		  ◦ Secure Research Initiatives Learnings
		• **Research**: From the Fringes to the Mainstream: How COVID-19 Conspiracy Theories Spread across Social and Mainstream Media
			• Kevin Muller, Fordham
			• Barbara Schnell, UC Boulder
			• Prof. Axel Bruns, Australian Research Council Laureate Fellow and Professor in the Digital Media Research Centre at Queensland University of Technology in Brisbane, Australia, and a Chief Investigator in the ARC Centre of Excellence for Automated Decision-Making and Society
				CF & I2

11/10 /2022	**Higher Ed Cloud Forum**	The 2022 Cloud Forum was held at Washington University in St. Louis. Each day portions were made available live. Today's content included:
		• **Lightning Talks**:
		  ◦ So, You Want to Move to the Cloud. What Could Go Wrong?
		  ◦ What's a Title got to do with it?
		  ◦ Quantum Computing in the Classroom
		  ◦ Piloting Microsoft's Direct Pay Option
		  ◦ The Year in AVD
		  ◦ Shifting backup storage away from AWS
		  ◦ Cloud-Enabling the Biomedical Research Workforce
		  ◦ NIH Cloud Lab
		  ◦ Splitting the tab 300 ways
		  ◦ Service Attribute Management at Scale
		• **Research**: Drivers of Healthcare Outcome Disparities at the Individual Level
			• Bob Flynn, Internet2
			• Dan Landerman, Northwestern
			• Chris Lawrence, Iowa
			• Cornelia Bailey, Chicago
			• John Bailey, WashU
			• Todd Reilly, National Institutes of Health
			• Rachel Malashock, National Institutes of Health
			• Gabriel Geise, Penn State
			• Sean O'Brien, Internet2
			• Dr. Jeffrey Thompson, Chief Research Informatics Officer for the University of Kansas Medical Center and University of Kansas Health Services
				CF & I2

11/9 /2022	**Higher Ed Cloud Forum**	The 2022 Cloud Forum was held at Washington University in St. Louis. Each day portions were made available live. Today's content included:
		• **Lightning Talks**:
		  ◦ Let a Thousand PaaSes Bloom
		  ◦ Provisioning GovCloud Accounts
		• **Panel**: The Challenge of Federal Cloud Funding
		• **Research**: Using the Cloud to Disrupt Health and Medicine
			• Matthew Rich, Northwestern
			• Shelley Rossell, Chicago
			• Nick Weber, National Institutes of Health
			• Dr. Azizi Seixas, Director of The Media and Innovation Lab, University of Miami, Miller School of Medicine
				CF & I2

10/27 /2022	CCCG October Meeting to be held at EDUCAUSE Annual Conference 2022	CCCG October Meeting to be held at EDUCAUSE Annual Conference 2022 Cloud Computing Community Group (CG) Meeting (Open to All) Thursday, October 27 | 10:15AM–11:00AM MT | Meeting Room 610/612 Join this discussion on the challenges and opportunities associated with cloud computing. Topics will include contract negotiations, vendor relationship management, compliance and legal issues, data privacy and security considerations, identity and access management, service integration, skills and staffing implications, and cloud use cases that enable institutional agility, efficiency, and innovation. https://events.educause.edu/annual-conference/2022/agenda/cloud-computing-community-group-cg-meeting-open-to-all	• Damian Doyle • Kari Robertson	**CCCG**  **Running notes**
19 Oct 2022	**Key Considerations for Supporting Academic Researchers**	Researchers are increasingly leveraging computational technologies as a key approach within their research. More and more disciplines are leveraging data, simulation, and advanced analytics to perform their research. Researchers have increasingly complex requirements and expectations as they join institutions and funding agencies are requiring new and more complex data retention approaches. At the institutional level, developing a strategy on how to support the wide range of requirements in a supportable, cost effective, and secure way has become a critical strategic initiative. This session will discuss a perspective on how to support researchers, impacts from the funding agencies and AWS technology solutions. • **Audience**: This session is for higher education information technologists, VPs of Research and principal investigators interested in using cloud to accelerate and scale their scholarship. • **Time**: Wednesday, October 19 at 11 am PDT/2 pm EDT	• Rick Friedman – Head, US EDU Research Strategy and BusinessDevelopment team, Amazon Web Services	**I2O** 
18 Oct 2022	**NET+ Kion Service Evaluation and Release**	Back in January of this year Internet2 hosted a webinar for Kion (formerly cloudtamer) in response to community demand for a multi-platform cloud enablement tool. (Scroll down to January 11 in this list for details and a link to the recording.) The webinar and buzz it generated led to a NET+ service evaluation and now a higher education agreement. A dozen schools participated in the Kion service evaluation. The community members who led the working groups would like to share their work and findings with you. Please join us to better understand the accessibility, business, functional, identity, and security reviews conducted during the past four months to vet Kion's suitability for meeting the needs, and adhering to the practices, of the research and education community's cloud operations. For more read the blog post: Kion Checks the Top Boxes • **Audience**: Cloud enablement, infrastructure, security, and business teams • **Recording and Slides**: https://drive.google.com/drive/folders/1600H6Wq3cQvTGJZTUF8PxEZ0FjhiYEVk?usp=sharing	• Bob Flynn - Internet2 • Tara Gyenis - Internet2 • Todd Haddaway - UMBC • Brad Herold - Kion • Jeff Minelli - PSU • Rick Rhoades - PSU • Shelley Rossell - Chicago • Randy Shore - Kion	**I2O** 
9/28 /2022	CCCG Monthly Call - **Revisiting our failures.**	Discussing how we faltered, then picked ourselves up, dusted ourselves off and came back better than ever! NOTE: No Zoom recording so attendees can feel safe to have open discussions.	• Facilitated by Damian Doyle	**CCCG**  **Running notes**
8/24/22	CCCG Monthly Call - **Cloud Standards Panel**	Panelists discuss the following questions followed by Q&A with the larger group: • What systems/tools do you have in place to maintain/monitor cloud standards? • How do you decide on the list of cloud standards (and when new standards should be added)?	• Matt Stout, University of California • Ben Rota, Harvard University • Wes Emerson, University of North Carolina • Lucrecia Kim-Boswell, Stanford • Laura Hugill Belken, Mayo Clinic	**CCCG**  **Running notes**
7/27/22	CCCG Monthly Call - **Sharing Stanford's best practices for building out a centralized GCP offering**	How do you enable researchers or data analysts across disparate schools or agencies to take advantage of GCP, while providing central oversight, budgeting and governance? See how Stanford addressed this challenge, after various schools across the university started using GCP independently and requested help from Central IT to get billing and oversight under control. Lucrecia Kim-Boswell, IT Director of Stanford University, will walk through the best practice structure their partner setup to manage billing and operations, so that an entire campus can easily access GCP with the help from a small University IT Team.	• Lucrecia Kim-Boswell, Stanford	**CCCG**  **Running notes**

6/22/22	CCCG Monthly Call - **Open Discussion**	This month's open mic discussion started with some questions EDUCAUSE asked the CG's to post to the community. Those questions, and some of the responses, can be found in the running notes. There was then some discussion about the role of EDUCAUSE in the past and how that has changed and brief mention of Internet2's role supporting the community. Suggestions were made on additional ways to get engaged in the community.	• Damian Doyle, UMBC • James Monek, Lehigh University • Kari Robertson, University of California	**CCCG**  **Running notes**
5/25/22	CCCG Monthly Call - **Secure research enclaves and compliance**	This month is all about security and compliance. All of us are responsible for security but bring your security team along today for the presentations and conversations. First will be a presentation from John Bailey at Wash U discussing How to Create Secure Research Enclaves and everything involved in that. James Monek from Lehigh University will also be giving an update on the Health Data Warehouse Pilot he previously discussed, since it has now finished a HIPAA audit and he can discuss how that went.	• John Bailey, Washington University in St. Louis • James Monek, Lehigh University	**CCCG**  **Running notes**
4/27/22	CCCG Monthly Call - **Open Discussion**	This month is our open mic discussion meeting for CCCG, and we wanted to make sure we curating the finest possible discussion for all of you. To assist, we would ask you to fill out this very, very brief single question poll to let us know how to advertise and focus next week's meeting. I promise, its super quick. If you could fill it out by the end of the day Thursday we would appreciate it. You can select up to 4 topics, and write in your own as needed. CCCG April Meeting Discussion Topics	• Damian Doyle, UMBC • James Monek, Lehigh University • Kari Robertson, University of California	**CCCG**  **Running notes**
4/20/22	Internet2 NET+ Special Event - **Sustainability and AWS: Insights for Higher Education - A NET+ AWS Town Hall**	This month, in honor of Earth Day, we turn our attention to the environment. We welcome Hahnara Hyun, Partner Solution Architect, Amazon Web Services to present a session called **Sustainability and AWS: Insights for Higher Education**. In general, NET+ program events are only open to subscribers, but due to the importance of this work and this message, we are opening this session to the entire research and education community. • **Title**: Sustainability and AWS: Insights for Higher Education • **Session Description**: Digital Transformation can drive improved student outcomes, speed time to science, and increase agility within higher education institutions. Higher education leadership, responding to student and faculty demands, look to incorporate sustainability goals and practices into the university experience. In this session, we'll talk about sustainability transformation, how we've been approaching it at Amazon and AWS, and actions higher education customers can take to incorporate sustainability into their digital transformation efforts. • **Speaker Bio**: Hahnara Hyun is a Partner Solution Architect for Amazon Web Services. Hahnara has a background in software engineering. She began her journey in tech at Fullerton College and received her Computer Science B.S. from the University of California, Irvine where she was an undergraduate machine learning researcher. She found her passion in enablement, sustainability, and cloud architecture. As a result, in her day-to-day role, she develops AWS GameDays to enable partners and customers to build on AWS. Hahnara is also a public speaker for AWS and ran sustainability enablement sessions at re:Invent 2021. In her free time, Hahnara plays volleyball though she's not very good yet and loves to cook, losing most of her free time making multiple trips to the grocery store grabbing forgotten items.	• Hahnara Hyun, Partner Solution Architect for Amazon Web Services	**I2** 
3/23/22	CCCG Monthly Call - **Data Lakes**	Data Lake in the Cloud - March CCCG Meeting Does your institution have a cloud data lake strategy? Does it look more like a data puddle? Interested in learning how you can deploy a data lake in the cloud to handle and analyze data at scale? As with last month, we encourage you to bring along a buddy. This time bring along your favorite data analysts, scientists, or data architects to share important tips to get a data lake working at your institution. There will be two presentations along with questions, answers, and discussions. **"Lessons Learned from AWS Student Data Lake POC"**, by James Monek from Lehigh University **"A Cloud Data Lake Approach to COVID Recovery"** by Aswan Movva from University of California, Berkeley • **When**: 9am PT/12pm ET • **Where**: https://internet2.zoom.us/j/91519802344 • **Running Agenda/Notes**: https://tinyurl.com/EDUCAUSE-CCCG	• James Monek, Lehigh University • Aswan Movva, University of California, Berkeley	**CCCG**  **Running notes**

3/21/22	Internet2 Networking Team - **Multi-Cloud Networking Community Discussion**	On February 23, 2022, Internet2 attended the CCCG call to talk about their Networking for Cloud services and to query the group about how the future Cloud Connect console will look, feel and work. During the discussion, attendees asked about the multi-cloud environment and asked for additional discussion on multi-cloud. They also touched on how a layer3 "virtual cloud router" solution that doesn't require hair pinning traffic between clouds through your campus or data center could reduce complexity, improve latency, increase performance, and reduce cost. The I2 networking team believes that together we can develop a solution that that meets these goals, supporting your critical cloud workloads. To continue the discussion, we have scheduled an open discussion session on multi-cloud networking hosted by Internet 2. Please invite all interested colleagues. We will also record the session for those unable to attend. **Topic**: Multi-Cloud Community Discussion **Time**: 11:00 AM Pacific Time / 2:00 PM Eastern Time **Location:** https://internet2.zoom.us/j/95984070917?pwd=ZVl5NjNKZkJXT1E2aDE2Q2RLUWhrZz09 Meeting ID: 959 8407 0917 Passcode: 112044	• George Loftus, Internet2 • Christopher Green, Internet2 • Scott Taylor, Internet2 • Linda Roos, Internet2	**I2** 
2/23/22	CCCG Monthly Call - **Internet2 Cloud Networking Tools and open Discussion**	**Asks:** Invite your networking colleagues to the meeting for the presentation/discussion. Put some networking questions/topics in the agenda for the open discussion portion following the presentation. **Guest Presenters:** We are going to have Internet 2 discuss some plans and ideas they have for how to better allow cloud administrators/architects/etc to be able to manage/adjust/leverage the advanced Internet 2 network features and connections, as well as some opportunities to provide some input into the user design and shaping of these initiatives. We will also have time for some open discussion, and I'd like to encourage folks to bring along one of their network colleagues if they are available to help us have a broader, well informed discussion since both the I2 presentation and the open discussion will benefit from everyone different perspective. • Running Agenda/Notes: https://tinyurl.com/EDUCAUSE-CCCG • Session recording and Zoom chat: https://drive.google.com/drive/folders/1KXgIGpxBe5GsxgiQdav28muoZRIYCipM?usp=sharing	• George Loftus, Internet2 • Christopher Green, Internet2 • Scott Taylor, Internet2	**CCCG**  **Running notes**
1/26/22	CCCG Monthly Call – **"IT'S A PILOT! Legitimating experimental work in your cloud"**	Has this happened to you? You have a cloud that's not ready to take payments, or not ready to be used by the masses, or you don't know how to do things right — but something comes through that you shouldn't say no to. UChicago has handled these situations with a lightweight pilot framework. Both the cloud people and the user agree in advance, in writing, on what both parties will get from the situation. It has helped to set expectations about the unexpected and ultimately get unstuck. The 2nd part of Wednesday's meeting be open discussion (so put those topics in the running agenda or bring them with you Wednesday). We look forward to seeing everyone, and I've included all the meeting info below again as a reminder. • **When**: 9am PT/12pm ET • **Where**: https://internet2.zoom.us/j/91519802344 • **Running Agenda/Notes**: https://tinyurl.com/EDUCAUSE-CCCG	• Cornelia Bailey, U Chicago • Damian Doyle, UMBC • James Monek, Lehigh University • Kari Robertson, University of California	**CCCG**  **Running notes**
1/11/22	Internet2 Infrastructure & Platform Services – Search for Good Tooling – Kion.io	Last summer Internet2 NET+ Infrastructure & Platform Services program manager Bob Flynn put out a call to the community to identify the greatest areas of need for tooling to help them run the major cloud platforms at scale at their institutions. That call included a survey and that survey produced some decent results. In a three-way tie for the top survey response were: 1. Account automation and maintenance 2. Security monitoring and remediation 3. Cost tracking management and savings. The solutions had to be multi-cloud and pass muster with institutional security and compliance. One tool that was specifically suggested by multiple respondents in these areas was cloudtamer.io. Cloudtamer.io has since changed its name to Kion, but we are still interested to see if their tools will meet these needs. It appears to tick all those boxes from the survey, but will it work for higher ed? Join us to find out.	• Bob Flynn, Internet2 • Tim Hazard, Kion • Tyler Long, Kion • Randy Shore, Kion	**I2O** 

2021

Date	Title	Description	Speaker	Meeting Assets

12/8/21	Special Edition Monthly Call - The Big Lie: Cloud Computing - Bill Wrobleski, Penn State EDUCAUSE 2021 and Cloud Forum 2021 Wrap-ups. What are we planning for 2022?	The Big Lie: Cloud Computing - Bill Wrobleski, Penn State 12:00pm ET - 12:45pm ET In 2011, I started evangelizing for the Cloud. It's been 10 years, so the future I promoted has come true, right? I'll revisit the vision we imagined, what actually happened, and explore the question "Is cloud computing the biggest disappointment for higher education this century?" EDUCAUSE 2021 and Cloud Forum 2021 Wrap-ups. What are we planning for 2022? 12:45pm ET - 1:00pm ET Co-chairs will provide a brief wrap up of the recent conferences and feedback we received for what the CG should be focusing on in 2022. And yes, we want your feedback before you leave for the holidays, so there will be homework. • When: Wednesday, December 8 2021 9am PDT/12pm EDT • Where: https://internet2.zoom.us/j/91519802344 • Running Agenda/Notes: https://tinyurl.com/EDUCAUSE-CCCG	• Bill Wrobleski, Penn State • Damian Doyle, UMBC • James Monek, Lehigh University • Kari Robertson, University of California	**CCCG**  **Running notes**
11/18 /21	Live from Cloud Forum 21 - Presentations	Cost is always a concern when moving from the traditional capex model on prem to the opex model in the cloud. Declan Fleming and Jessica Respicio from UC San Diego will share what they learned about cost (and business) optimization from their experience with cloud at UCSD and CloudBank. In our final presentation, Penn State's Rick Rhoades will share how pandemic hiring challenges and an innovative talent-sharing program led to surprising success and unexpected outcomes. See the Cloud Forum Agenda for descriptions, slides and recordings.	• Declan Fleming - UC San Diego • Jessica Respicio - UC San Diego • Rick Rhoades - Penn State University	**CF & I2 TechEXtra21** 
11/18 /21	Live from Cloud Forum 21 - Researcher (Amazon)	Researcher presentations are a highlight for Cloud Forum attendees each year. The researchers are asked to focus on their research, not the underlying cloud technology, though that does sometimes poke through. These talks are meant to remind us cloud professionals of the importance of the work we do each day. This year's researcher nominated by Amazon is Professor Eric Venner, Associate Professor, Division Director for Bioinformatics from the Human Genome Sequencing Center – Clinical Lab at the Baylor College of Medicine with a talk titled "Implementing Genomic Medicine at the HGSC."	• Eric Venner, Associate Professor, Division Director for Bioinformatics from the Human Genome Sequencing Center – Clinical Lab at the Baylor College of Medicine	**CF & I2 TechEXtra21** 
11/17 /21	Live from Cloud Forum 21 - Researcher (Microsoft)	Researcher presentations are a highlight for Cloud Forum attendees each year. The researchers are asked to focus on their research, not the underlying cloud technology, though that does sometimes poke through. These talks are meant to remind us cloud professionals of the importance of the work we do each day. This year's researcher nominated by Microsoft is Dr. Travis Osterman of Vanderbilt University Medical Center with a talk titled "Lessons Learned from VUMC's First End-to-End Cloud Project."	• Dr. Travis Osterman of Vanderbilt University Medical Center	**CF & I2 TechEXtra21** 
11/17 /21	Live from Cloud Forum 21 - Presentations	The maintenance and lifecycle of data is a never-ending challenge. In our first presentation we'll hear about research into how schools are dealing with the seeming end to unlimited cloud storage being done by Internet2's Oren Sreebny. Oren will be joined by Helen Hockx-Yu who will share how Notre Dame is approaching the problem. In our second presentation, Ken Bigelow and Venkat Mahadevan from the University of British Columbia will explain their efforts to make use of cloud computing easier for their research community. See the Cloud Forum Agenda for descriptions, slides and recordings.	• Oren Sreebny - Internet2 • Helen Hockx-Yu - Notre Dame • Ken Bigelow - University of British Columbia • Venkat Mahadevan - University of British Columbia	**CF & I2 TechEXtra21** 
11/16 /21	Live from Cloud Forum 21 - Researcher (Google)	Researcher presentations are a highlight for Cloud Forum attendees each year. The researchers are asked to focus on their research, not the underlying cloud technology, though that does sometimes poke through. These talks are meant to remind us cloud professionals of the importance of the work we do each day. This year's researcher nominated by Google is Luigi Marchionni, Associate Professor of Pathology at Weil-Cornell Medicine. Professor Marchionni's talk is titled "A Hitchhiker's Guide to Big Data Based Biomarkers."	• Luigi Marchionni - Associate Professor of Pathology at Weil-Cornell Medicine	**CF & I2 TechEXtra21** 

11/16 /21	Live from Cloud Forum 21 - Lightning Talks	The first day of the 2021 Cloud Forum's online content kicked off with nine (9!) lightning talks from the National Institutes of Health, University of Chicago, CloudBank and Internet2. For details, slides and a recoring of the talks see, the Cloud Forum agenda.	• Philip Meacham - NIH • Yanik Wynter – NIH • Carlo Espiritu - NIH • Joel Peterson - NIH • Rob Fatland - UW, CloudBank • Shelley Rossell - Univ Chicago • Cornelia Bailey - Univ Chicago • Ananya Ravipati - Internet2 • Bob Flynn - Internet2	**CF & I2 TechEXtra21**
10/29 /21	EDUCAUSE 2021 Face to Face meeting	Join this discussion on the challenges and opportunities associated with cloud computing. Topics will include contract negotiations, vendor relationship management, compliance and legal issues, data privacy and security considerations, identity and access management, service integration, skills and staffing implications, and cloud use cases that enable institutional agility, efficiency, and innovation.	• Jody Couch, UC Berkeley • Damian Doyle, UMBC • James Monek, Lehigh University	**CCCG** **Running notes**
9/22/21	Cloud FinOps	Cloud costs keeping you up at night? Are you wondering how to keep costs from running out of control? What practices should you put in place now to stay on top of the cloud spending game? A group of higher education cloud professionals with expertise in cost optimization and cloud financial best practices met regularly through the spring and summer pooling their expertise in an effort to create a list of tips and techniques for making the most of your cloud dollars. In this session they shared those pearls of wisdom with you, their colleagues in higher ed cloud. Find their slides, full tip sheet, presentation recording and more on the session resource page.	• Matthew Chess - University of Michigan • John Finigan - University of Colorado Anschutz Medical Campus • Mike Florian - University of Arizona • Bob Flynn - Internet2 (staff support) • Erik Lundberg - University of Washington • Sara Jeanes - Internet2 • Timothy Middelkoop - internet2 • Richard Murillo - Harvard University • Kari Robertson - University of California Office of the President • Ben Rota - Harvard University • Nick Young - University of North Carolina Greensboro • Jonathan White - University of Central Florida	**CCCG** **Running notes**
8/26/21	Special Edition of Monthly CCCG Call -	We are excited to announce that for this month's call, the Research Computing and Data CG will be partnering with the Cloud CG! The call will be held on Thursday, August 26th from 1-2 pm ET.In this call, we will discuss top use cases for cloud for research. We will first hear from you on what your top use cases are, and what services you are keeping on-premise. We will then explore how to manage distributed costs associated with cloud usage. We will discuss models and resources used to support researchers using the cloud, as well as the level of support provided at different institutions. Please download and import the following iCalendar (.ics) files to your calendar system. Monthly: https://educause.zoom.us/meeting/tJUkd--oqTsuGNEfXHMKLyvcD6yYJuG03tBR/ics?icsToken=98tyKuCppzssGtOVtBuCRowcHYigM_TwtmJbjY14mifNLgt_exX1ErRbC5hqN4iD Join Zoom Meeting https://educause.zoom.us/j/91906070425?pwd=SHJnZUNYVnVWa3Z2aTJ3Tm45MUNVdz09 Meeting ID: 919 0607 0425 Passcode: 243359		**CCCG** **Running notes**

7/28/21	NET+ GCP Summer Camp: Running the Institution on Cloud Power	IT professionals are always looking for the best tools for the job. An ever-increasing number of those jobs can be done more efficiently or effectively with cloud tools. In the final NET+ GCP Summer Camp session of 2021 we will hear about a range of uses, from the operational, to the strategic, to the meta. • Cloud enablement automation • VMWare in GCP Proof of Concept • GCP and the Unizin Data Platform for Learning Analytics	• Maneesha Aggarwal & Parixit Dave, Columbia University • John Bailey, Washington University in St. Louis • David Reid, University of Missouri	**I2O** 
7/28/21	Making better teams with diverse hiring and retention	Diverse teams are better teams! This month's Cloud Computing Community Group is an opportunity to share principles of diverse hiring and retention. This session will be a moderated panel discussion about what everyone, from leadership to established IT professionals, can do to be supportive of new and diverse professionals entering the workforce, but also to actively seek them out. After our panelists share their stories, we will have time to discuss audience member's ideas. Please share this invitation with others who may be interested. **When:** Wednesday, July 28 2021 9am PDT/12pm EDT **Where:** https://internet2.zoom.us/j/91519802344 **Running Agenda/Notes:** https://tinyurl.com/EDUCAUSE-CCCG **Download the meeting invite**	**Panelists** • Amanda Caton (She /Her/Hers) – System Engineering Team Manager, Lehigh University • Bobby Cox – ServiceNow Developer, UC Berkeley • Tre`Von McKay • Sowmya Shankar – Applications Programmer, University of Delaware • Sherika Wynter – Senior Product Manager & Contract Lead, Cloud Services, NIH Center for Information Technology **Moderator** • Sara Jeanes – Product Manager, eduroam, Internet2	**CCCG**  **Running notes**
7/21/21	NET+ GCP Summer Camp: The Power to Change Lives	The uses of hyper-scale computing power are limited only to the imaginations of those leveraging it. Nowhere is this more evident than in the work of our researchers. This NET+ GCP Summer Camp session will showcase two very different but undeniably impactful research projects made possible with the hyper-scale compute power and tools of GCP. Join us to learn about: • New York University Pediatric Undiagnosed Diseases Program • Heterogeneous computing for the Large Hadron Collider	• Gilad Evrony, New York University, Grossman School of Medicine • Phillip Harris, Massachusetts Institute of Technology	**I2O** 
7/15/21	NET+ Palo Alto Networks: Cloud-native security for workloads and SaaS applications	Another great community effort has led to the evaluation and release of a higher-ed negotiated service agreement for a toolset widely-popular across higher ed. In this case it's the NET+ Palo Alto Networks "Cloud-powered security for .edu" offering. Peek (or jump) into the ongoing series of NET+ Palo Alto Networks community town hall meetings in July to learn about their security tools.		**I2O** 
6/23/21	NET+ GCP Summer Camp: Teach the Cloud, Teach Using the Cloud	There are all kinds of reasons we strive to provide safe, powerful and easy-to-use cloud computing environments for our institutions. Few are more important or have broader impact than teaching and learning. Join the NET+ GCP Summer Camp session to hear three great stories of how GCP is being used in the classroom to teach: • Cybersecurity • Genomic research skills • Cloud computing	• Wu-chang Feng, Portland State University • Geraldine Van der Auwera, Broad Institute of MIT and Harvard • Alan Walsh, Indiana University	**I2O** 
6/23/21	Open Discussion	• New co-chair announced. Congratulations to James Monek from Lehigh University! • Third-party tool ecosystem for cost visibility, monitoring, security optimization • Security monitoring tools and strategies to deal with hybrid environments • Tools and strategies to protect against ransomware		**CCCG**  **Running notes**

6/10/21	NET+ CloudCheckr Premium Webinar	Whether you are multi-cloud or focusing your efforts on one, support tooling for cost and security tracking are increasing helpful and increasingly important. CloudCheckr provides cost management, asset inventory, security & compliance monitoring, and resource utilization tracking across your multi-cloud environments, giving not only centralized visibility into your cloud at the enterprise level, but also putting tools in the hands of individual researchers, departments and developers. See CloudCheckr in action and hear what your peers who evaluated the service think about it.	• David Kalish - CloudCheckr • Ethan Conner - Carnegie Mellon University • Shane Heivly - The Pennsylvania State University • Gerard Shockley - Boston University • Noah Abrahamson - Stanford University • Jennifer Triplett - DLT	**I2O** 
6/2/21-6/4/21	Higher-Ed DevOps Conference	On the afternoons (1-5 EDT) of June 2-4, the Higher-Ed DevOps Conference will be meeting to share training, best practices, and more. If you are faculty/staff of any InCommon institution, you are welcome to join us… for free! Check out the agenda.		**COMM** 
5/26/21	New NET+ Services Introduced to Meet Higher Ed Community Needs	20 schools collaborate with Internet2 to vet and release four new NET+ services to the community. • CloudCheckr • Google Workspace of Education • Palo Alto Networks • signNow and airSlate	• Noah Abrahamson - Stanford University • Nick Young - University of North Carolina Greensboro • Rick Haugerud - University of Nebraska • Manoj Chitre - Claremont Graduate School	**I2O** 
5/26/21	Higher Ed Case Studies of Power and Agility in the Public Cloud	• University of California migrates PeopleSoft HR to AWS • University of creates powerful COVID-19 testing tracking tooling under constantly changing guidelines	• Kari Robertson - University of California Office of the President • Ken Taylor - University of Illinois, Office of the CIO	**CCCG**  **Running notes**
5/14/21	Unconference	Community-driven conversations on: • Security & Governance • Research & HPC • Cost Management & Billing • Service Delivery • Cloud Ops & Tactics • Getting Started & Evolving Cloud Strategy	• All of you!	**CF** 
4/28/21	Open Discussion	• Presentation Internet2's Jamie Sunderland about the results of a recent Research Computing in the Cloud survey he ran for the NSF. • Discussion of the Internet2 CLASS training program for those who support researchers' move to the cloud. • An update on the discussion in the February meeting on the costs associated with AWS Transit Gateway and the types of behaviors and services it enables (or not) at Higher Ed institutions	• Jamie Sunderland - Internet2 • Dana Brunson - Internet2 • Kevin Murakoshi - AWS	**CCCG**  **Running notes**
4/9/21	Trust and Security	• The case for avoiding “networking” in your cloud adoption strategy. • Securing Security for your Cloud Strategy • TLD TL;DR - Trust from on high • Panel: Protecting cloud hosted data sets	• John Bailey - Washington University in St. Louis • Shelley Rossell and Cornelia Bailey - University of Chicago, Information Security • Sara Jeanes, Adair Thaxton, and Nick Lewis - Internet2	**CF** 

3/24/21	**Using Cloud for Research at Scale** • Use of GCP by Rubin Observatory • Using commercial clouds to process IceCube jobs	• The Vera C. Rubin observatory will conduct an 10 year astronomical survey of the southern sky, the Legacy Survey of Space and Time (LSST). This will produce 20TB of data nightly. In the run up to operations, which should start late 2023, we have started a large scale three year experiment with Google. This talk will introduce Rubin Observatory, the data processing and access and a little of what we are doing with Google Cloud Platform(GCP).	• William O'Mullane • Igor Sfiligoi	**CCCG**  Running **notes**
3/12/21	Google Team-selected Researcher + Community Presentation	• Disorganized Organizations: Balancing the need for control with distributed IT • Leveraging VirtualFlow to harness the power of cloud computing to target COVID-19 proteins via ultra-large virtual screens	• Ben Rota – Harvard	**CF** 
3/5/21	Jupyter on Google	We'll have Marc Cohen from Google leading us through the managed offerings from Google, plus folks from UMBC and NYU talking about their Jupyter Hub deployments on GCP, and Burwood talking about how partners can help with Jupyter.	• Marc Cohen - Google	**I2O** 
2/24/21	How Universities are Providing Self-Service Cloud Environments for Researchers	Internet2 hosted webinar to help Higher Education researchers leverage new self-service, managed, cloud-based solutions. • RONIN gives researchers explicit budget control and forecasting so they can use their research budgets effectively • RONIN also provides research IT with administrative oversight into researcher spend and control over the security policies enforced across all RONIN users • Service Workbench promotes collaboration around data, by enabling researchers to upload and share data sets, and also allows quick access to public research data sets hosted by AWS • Service Workbench provides researchers with spend transparency and control by enabling them to see individual workspace costs, as well as spend across projects and organizational units.	• Parice Brandies, PhD Candidate, University of Sydney School of Life and Environmental Sciences • Paul Avillach, Assistant Professor in Pediatrics & Biomedical Informatics, Harvard Medical School and Boston Children's Hospital • Nathan Albrighton, CEO and Founder of RONIN • Madhu Bussa, Sr. Solutions Architect, AWS • Oren Sreebny, Consultant Internet2 Cloud Programs, Internet2	**I2O**  **Blog Post**
2/24/21	Open Discussion	• Presentation and discussion by Ben Rota from Harvard summarizing results of a recent Research Computing in the Cloud survey. • Discussion on how to fund ongoing cloud costs (storage and compute) for research projects once the grant expires • Discussion on the costs associated with AWS Transit Gateway and the types of behaviors and services it enables (or not) at Higher Ed institutions	Ben Rota – Harvard	**CCCG**  Running notes

2/12/21	Amazon Team-selected Researcher + Community Presentation	• Managing IaC Code Rot: Terratest in Action • Using the cloud to support research access to confidential data: The Administrative Data Research Facility	• Jason Armbruster, Cloud Architect /Engineer & Wylie Butler, Cloud Engineer – University of Colorado • Dr. Julia Lane, Professor at the NYU Wagner Graduate School of Public Service, at the NYU Center for Urban Science and Progress, and a NYU Provostial Fellow for Innovation Analytics	**CF** 
1/27/21	Cloud Challenges Facing Smaller Institutions	What are the different challenges that are faced by smaller institutions, how do strategic /operational motives differ, how are school designating their staff since they are already wearing so many different hats in many cases. How do we better connect with this community to make sure they are represented in our community?		**CCCG**  Running notes
1/8/21	Cloud Strategy	• What's your deal: provider, consumer, or broker? • Self Managed vs. Managed Service Provider • The Power of Free: A Crisis of Opportunity and how the Cloud Saved Us • Infrastructure Analytics at UNCG • Panel: Strategic Cloud Decision Making	• Cornelia Bailey – University of Chicago • Kari Robertson – University of California, Office of the President • Ryan Frazier – Harvard Business School • Nick Young – UNC Greensboro • Erik Lundberg – University of Washington – Moderator; Brian Jemes – University of Idaho; James Monek – Lehigh University; Bill Thompson – Lafayette	**CF** 

2020

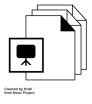
Date	Title	Description	Speaker	Key
12/11/20	Microsoft Team-selected Researcher + Community Presentation	• Patient-specific air flow modeling to support ventilator splitting under dire conditions • IAM in the cloud – architecture, cost and benefits	• Amanda Randles – Alfred Winborne and Victoria Stover Mordecai Assistant Professor of Biomedical Sciences – Duke University • Bill Thompson – Lafayette College	**CF** 
12/2/20	Open Discussion	Discussion around Re-Invent and recent Cloud Forum sessions. Updates on what is happening on campuses around COVID recovery and cloud use to support those efforts. Discussion on cost management and remote training. (No recording this month)		**CCCG** Running notes

11/13/20	Research Support	• Panel: Getting the Most out of your Public Cloud Research Dollars – An overview of the NSF-funded CloudBank project and the NIH STRIDES Initiative, how they benefit academic researchers and how best to support them. • Cloud Research Resources to Simplify the Research Lifecycle • Automating the provisioning of HIPAA allied instances with Ansible and Step Functions	• Cornelia Bailey – University of Chicago – Moderator; Brian DeMeulle – UC San Diego, Nick Weber – National Institutes of Health • Joshua Kissee – Texas A&M University • Matthew Chess – University of Michigan; Brandon Swickerath – University of Michigan	**CF** 
10/28/20	Strategies for Controlling Costs in the Cloud	Teams from Harvard and University of Michigan will talk about ways to save money on cloud computing and their approaches to helping their campuses realize those savings.	• Ben Rota and Richard Murillo – Harvard University • Mathew Chess, Kenny Moore and Alok Vimawala – University of Michigan	**CCCG**  Running notes
10/9/20	Cloud Community Governance	• Bringing order to wild free range cloud through inclusive governance • Panel: Leveraging the Cloud Community	• Damian Doyle and Todd Haddaway – University of Maryland Baltimore County • Oren Sreebny – Internet2 – Moderator; John Bailey – Washington University in St. Louis; Bob Flynn – Indiana University; Matthew Rich – Northwestern University; Alok Vimawala – University of Michigan	**CF** 
9/23/20	Open Discussion	Lots of community announcements. A pitch for people to join the DevSecOps conversation. Brief mention of the FinOps discussion. What role is cloud playing in back to school and COVID-related work, including storage of testing/tracing data. Short rant about Box security. Discussion of how schools are taking requests for cloud accounts and how they keep track of inventory and what people are doing in their accounts. Lessons and resources shared.		**CCCG**  Running notes
9/11/20	Cloud Enablement Success Stories	• Working with Cloud reserved instances to reduce costs • Monitor AWS with Grafana 7 • Cloud Billing • OTICA – Platform-on-a-Platform for GCP • UCF's Remote Learning Solution to the Pandemic • Notre Dame's Accelerated VDI Madness	• Gerard Shockley – Boston University • James Monek – Lehigh University • Jim Charters – University of Michigan • Hans Jacobsen & Alan Ge – Stanford Healthcare • Jeff Samek, Robert Connors & Bob Mello – University of Central Florida • James Smith & Brandon Rich – University of Notre Dame	**CF** 

8/26/20	From Zero To Secure Research Hero In Four Weeks!	University of Pittsburgh IT was approached by one of its leading researchers with a challenge: provide for a secure environment in which research could be conducted on a controlled HIPAA dataset. Oh, by the way, enable access from the internet AND allow people only take specific pieces of data out of the environment AND we need it in a month.	Brian Pasquini, Enterprise Architect - University of Pittsburgh	**CCCG**  **Running notes**
8/5/20	Q&A with IU Box Migration team	As a number of schools review their storage and collaboration strategies, Indiana University can provide insights from its experience. Indiana University was the first high-profile higher education customer to announce it was moving to Microsoft and Google and away from Box. IU's early start resulted in many schools looking to learn from their research, successes and failures. IU has received several inquiries from other higher ed schools and is offering to discuss its experience and considerations. As a result, the IU Box migration team put on an infoshare in June covering their process, communications, technical decisions and lessons. The recording of that infoshare, as well as slides and detailed communication plan, can be found at https://drive.google.com/drive/folders/1zZ5YnND9tO-MFreZxsMU4bdq9D6aBw5S?usp=sharing. It's one thing to listen to the story, it's another to chat with the story tellers. In the wake of the infoshare the calls for meetings with the migration team have continued to come. In order to allow this hardworking team to focus on their hard work, we have arranged a dedicated Q&A session for any and all to bring their questions about tools and timing, dependencies and decisions, method and messaging, and so much more. NOTE: We learned our lesson last time and we have a larger-capacity Zoom roof for this call.	• Adam Sweeny - Indiana University • Justin Zemlyak - Indiana University	**COMM**  **Chat transcript**
7/23/20	Higher Ed Cloud Networking & Security Workshop - Workshop Capstone: Peer Architectures	Presentations from three peer institutions, each presenting their architectures and best practices on one of the three platforms. Panel discussion, Q & A, Workshop wrap	• Ken Hoover – Yales University • Jason Sullivan – University of Arizona • Alok Vimawala – University of Michigan	**CF** 
7/22/20	Open Topic Discussion with a twist	Many in the community are taking part in the Higher Ed Cloud Networking & Security Workshop series. At the start of that series, attendees brainstormed a number of questions for the cloud vendors. Among those questions were many that were better suited as a discussion between members of the community. July would normally be an open topic discussion. We are keeping with that in spirit, but we are going to seed the conversation with a selection of questions from the list.		**CCCG**  **Running notes**
7/9/20	Higher Ed Cloud Networking & Security Workshop - Google Responses to Workshop Attendee Questions & Challenges	This session of the Cloud Networking and Security workshops features Google's team answering the questions and challenges compiled by community participants during the May 28 session.		**CF** 
7/7/20	Higher Ed Cloud Networking & Security Workshop - GCP Security and Networking Training	This session of the Cloud Networking and Security workshops features Google's overview of GCP security and networking tools and best practices.		**CF** 
6/25/20	Higher Ed Cloud Networking & Security Workshop - Amazon Responses to Workshop Attendee Questions & Challenges	This session of the Cloud Networking and Security workshops features Amazon's team answering the questions and challenges compiled by community participants during the May 28 session.		**CF** 

6/24/20	Indiana University Box Migration Infoshare	Switching cloud storage platforms can be challenging, especially when petabytes of data are involved. Indiana University has begun the process of switching from Box to Microsoft and Google for end-user cloud storage and is looking to share its experience and learn from the community. Topics will include IU's motivations for a move, selecting a migration vendor, when to leave the legacy storage up or take it down during a migration, how to handle loss of features when changing platforms, what communications challenges universities will face, and how COVID19 complicates a storage migration.		**CCCG**  **Running notes**
6/23/20	Higher Ed Cloud Networking & Security Workshop - AWS Security and Networking Training	This session of the Cloud Networking and Security workshops features Amazon's overview of AWS security and networking tools and best practices.		**CF** 
6/11/20	Higher Ed Cloud Networking & Security Workshop - Microsoft Responses to Workshop Attendee Questions & Challenges	This session of the Cloud Networking and Security workshops features Microsoft's team answering the questions and challenges compiled by community participants during the May 28 session.		**CF** 
6/9/20	Higher Ed Cloud Networking & Security Workshop - Azure Security and Networking Training	This session of the Cloud Networking and Security workshops features Microsoft's overview of Azure security and networking tools and best practices.		**CF** 
5/28/20	Higher Ed Cloud Networking & Security Workshop - Capturing the Questions, Listing the Challenges	Structured discussions to articulate the challenges faced by IT Pros when configuring, securing and managing enterprise cloud environments trying to meet the diverse demands of a higher education institution.		**CF** 
5/27/20	Open Topic Discussion			**CCCG**  **Running notes**
4/23/20	Google Anthos presentation to Stanford cloud team			**COMM** 
4/22/20	UNCG Cloud Cyberinfrastructure Innovation Lab	UNC Greensboro is exploring an idea to help catalyze adoption of cloud infrastructure for research and in the classroom across the entire university by creating a Cloud Cyberinfrastructure Innovation Lab. The lab is focused on institutional adoption of cloud infrastructure - something that can be challenging for a R2 and traditionally liberal arts institution.	• Jeff Whitworth, the Associate Vice Chancellor of Enterprise Infrastructure – UNC Greensboro	**CCCG** 

4/8/20	*The Role of Cloud Computing in Higher Ed's COVID-19 Response (Part 2)*			**CCCG**  **Running Notes**
3/25/20	*The Role of Cloud Computing in Higher Ed's COVID-19 Response (Part 1)*	We had over 100 people on the call. The conversation was great. Many schools shared their experiences of transitioning to online teaching, WFH and general community support and several provided helpful resources.		**CCCG**  **Running Notes**

2/26/20	Open Topic Discussion	• A lot has happened in the HED cloud world since our last open discussion. Add your topics to https://tinyurl.com/EDUCAUSE-CCCG.
		• Topics covered:
		  ◦ Community event updates
		  ◦ RFPs for hosting ERP in the cloud
		  ◦ How to address negative attitudes about using public cloud
		  ◦ What are you doing to bring public cloud to the classroom?
		  ◦ Cloud-based VDI experiences
				CCCG
				
				Running Notes

1/22/20	Data-driven Cloud Planning	• **Topic 1**: *Whether Forecasting: Informing Migration Choices with Metrics*
		  ◦ **Description**: Migration of applications to the Cloud is now a foregone conclusion for many institutions in Higher Ed. The first applications to leave the ground may be obvious or pre-determined, but after that initial rush of success of the few, what can be used to inform the bulk of the daunting effort that remains? Faced with a commitment to migrate 40% of the workload of over 400 applications within a 12 month period, UCLA developed a metrics based scoring and benefits spreadsheet tool to help inform and support the prioritization of application migrations. This presentation explains those metrics, the controls for scoring, and demonstrates the functioning of the tool.
		• **Topic 2**: *From Operational to Predictive: Evolving from a Traditional Data Warehouse to an Analytics Hub*
		  ◦ **Description:** In 2018, UMBC embarked on creating a new analytics-focused data warehouse with highly-performant real-time data ingestion pipelines using primarily native AWS tools. This session will outline the progress made leveraging AWS tools as well as open sourced products to establish the event-based ecosystem. We hope these methods can be used as a model for other campuses, as well as highlight the long-term benefits of re-architecting critical systems and processes in the cloud to accelerate innovation.
			• Brendan Bellina, Lead IT Architect, UCLA IT Services, Systems Services	**CCCG**
				
				Running Notes

12/14 /2022	CCCG Nov /Dec Meeting		• James Monek • Kari Robertson • Niranjan Davray	**CCCG** **Running notes**

Special thanks for the *presentation materials* icon by Krish from the Noun Project

- 2019
  - December 16 (combined Nov/Dec event) - Fall Cloud Conference Round-Up
    - Cornell Cloud Forum
    - Microsoft Ignite
    - AWS re:Invent
    - Internet2 Technology Exchange
    - Notes, recording and links
  - October 23 - Federated Access to Research Data
    - Dr. Craig A. Lee, Chair, NIST Public Working Group on Federated Cloud (lee@aero.org)
    - Khalil Yazdi, Chair, Open Research Cloud Alliance (khalilyazdi@outlook.com)
    - Slides, notes and recording
  - EDUCAUSE 2019 Face to Face meeting (Chicago, October 16, 2019)
    - Slides, notes and photo
  - September 25 - Open Discussion
    - Early survey results
    - EDUCAUSE F2F
    - CCCG Leadership transition
  - August 28 - Supporting Research in the Cloud - Round 1: The Human Bridge
    - Derek Morr (Cloud Solutions Architect) and Greg Madden (Associate CIO for Research) - Penn State University

        - Rob Fathland (Research Computing Director) - University of Washington
        - Marty Sullivan (Cloud Systems Engineer) - Cornell University
        - (notes and recording)
    - July 24 - Open Discussion
        - Funding for OS teams in the cloud
        - AWS Multi-Tenant vs Multi Account Strategy
        - Creating and tracking a 'cloud innovation' fund through optimization
        - How are you supporting researchers in the cloud?
        - Integration Tools
        - (notes and recording)
    - June 26 - Cloud Community Events and Activity
        - Recap of Cloud Networking Workshop put on by U Michigan, U Minnesota and Internet2 (Alok Vimawala - UMich)
        - Update on Cornell Cloud Forum 2019 (Sarah Christen - Cornell)
        - CCCG Engagement Channels (Bob Flynn - IU)
        - CCCG Engagement Team (Jody Couch - UCSC)
        - (recording and slides)
    - May 22 - Open Discussion
        - Announcements
            - Cloud Forum dates: November 6-8, 2019
            - Reminder: CFP for 2019 Cornell Cloud Forum closes June 1 https://bostonu.qualtrics.com/jfe/form/SV_bCyJsiOkPsm3tAh
            - #cloud_jobs channel added to CCCG Slack Team - post your cloud jobs there!
        - Firewalling in AWS: Paul Peterson from Emory talked about networking strategies for their non-research AWS environment. (slides)
    - April 24 - Google Cloud Platform
        - Evolution of GCP at an Office 365 University – presentation by John Bailey, WUSTL
        - With Great Integration Comes Great Responsibility (a.k.a. GCP at a G Suite School) – presentation by Bob Flynn, IU
        - Google CAB GCP Track
        - News from Google Cloud Next
        - Tech bulletin: Don't fear the mystery folder. Unexpected visitor due to Google change https://developers.google.com/apps-script/guides/cloud-platform-projects. - Ananya Ravipati, IU
        - IU GCP configuration document https://iu.box.com/s/5h6zj9l5dawie8crigc8m1v647kksw20
        - Internet2 NET+ GCP contract - Sara Jeanes, Internet2
        - (notes | slides & recording)
    - Mar 27 - Open Discussion
        - Performance testing of moving data from one cloud provider to another
        - SSO with AWS and how to federate external users
        - Upcoming AWS webinar series
        - Options for handling cloud training needs
        - Call for (self-)nominations for CCCG co-chairs
        - (notes | recording)
    - Feb 27 - Open Discussion (notes)
    - Jan 23 - Cloud Q & A for Small Schools (recording and resources)
- 2018
    - Dec 5 - Excerpts from the 2018 Cornell Cloud Forum (recording and resources)
        1. **Title**: Ouch! Commonly Overlooked (or Surprising) Cloud Costs
           Description: "Wait … that costs how much?" How do you prepare stakeholders for cloud-related charges that were provided 'for free' while on-premise? What new charges exist in the Cloud? What are the associated costs? Most importantly, who is going to pay them?
           Presenters: Kari Robertson and Glenn Blackler - UC Santa Cruz
        2. **Title**: Using AWS CLI with Shibboleth and Duo https://github.com/techservicesillinois/awscli-login
           Description: How can higher education give our faculty and staff convenient access to AWS tools without leaving behind a mess of long-lived secret keys? We'll demonstrate a University of Illinois plugin to the AWS CLI which authenticates against Shibboleth with Duo and manages short-lived credentials, making it easy to be secure.
           Presenter: Chris Kuehn - University of Illinois
        3. **Title**: Kubernetes: Container Orchestration at Scale
           Description: Kubernetes is a resource scheduler that started as a Google project. Now it is the primary container scheduler being adopted across the spectrum of both cloud and on-prem based deployments. With an extensible scale-first architecture it's easy to see why its adoption has outpaced other solutions such as Docker Swarm and Mesos. The goal is to present on the architecture of Kubernetes and basics of running Kubernetes at scale.
           Presenter: Jeff Sica - University of Michigan
           Resources: "Introduction to Kubernetes" open-source eight-hour 100-level labs: https://goo.gl/uHq6T4 and presentation: https://goo.gl/Yb6Hfr
        4. Time Permitting: AWS re:Invent recap
    - Nov 1 - Open discussion at in-person meeting at EDUCAUSE Annual Meeting
    - Oct 24 - Open discussion (see notes)
    - Sep 26 - Funding models for new cloud paradigms (speakers: David Seidl- Notre Dame, Ben Rota - Harvard)
    - Aug 22 - Notre Dame and the Cloud - Over the past three years, Notre Dame University has moved more than 80% of their IT infrastructure and services to Amazon Web Services (AWS). On this month's Higher Education Cloud Collaboration conference call, leaders from Notre Dame University will provide an overview of their move to AWS, and will share their lessons learned and advice for other institutions.
    - *Limit of recorded history*