IBM Center for Cloud Training

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Webinar

IBM Cloud Site Reliability Engineer (SRE) Certification

September 28th, 2021

Agenda

You can use the **chat window** to ask a question

- Introduction

- Discussions around the following topics

How has the role of SRE evolved?

What are the key topics for the IBM Cloud SRE Certification?

How has the skills required for SRE changed?

How can I prepare for the Certification?

Expert Perspective

Kevin Yu
Principal SRE - Site Reliability, Incident & Problem Management, and SRE KPI

John Easton
Distinguished Engineer - Cloud Strategy & Business Development Engineering

Cale Cohee
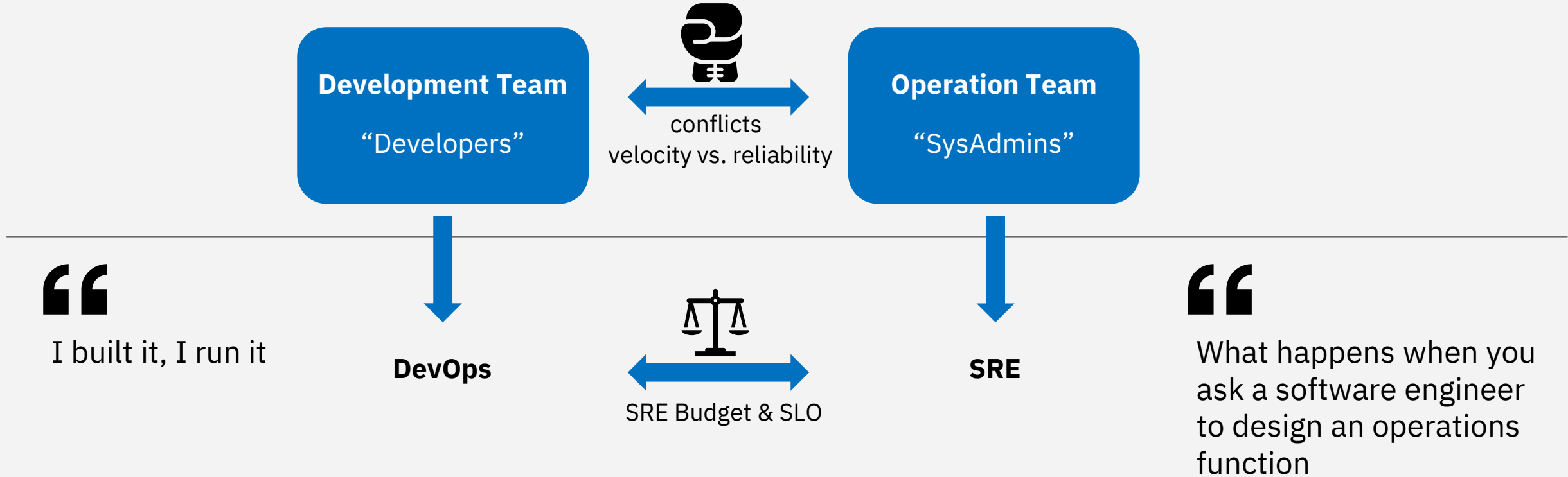SRE - AI Applications Platform

Anti-Pattern

❌ Saying buzz words like SRE won't naturally achieve outcomes
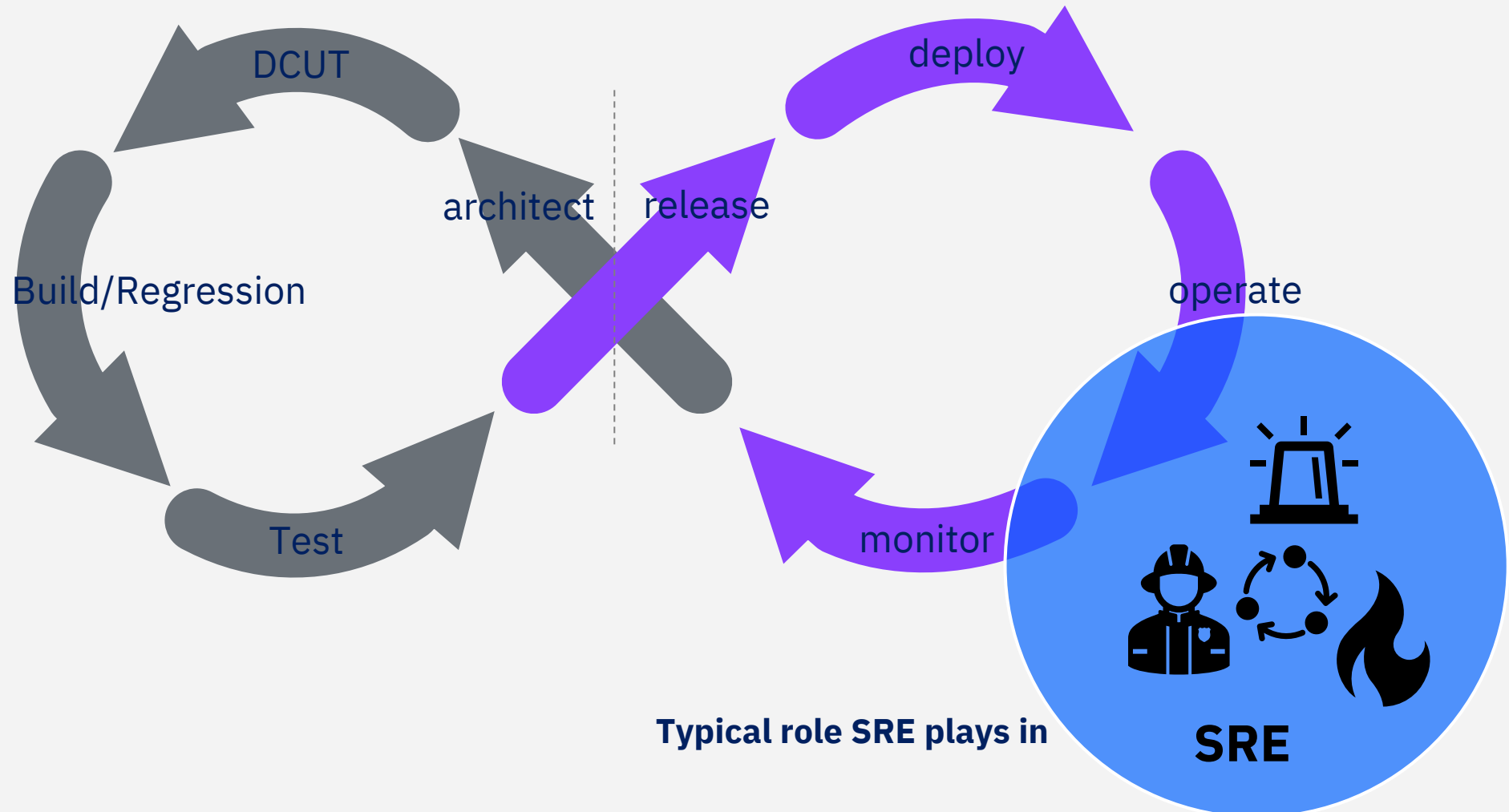
❌ SRE is not a one-time event

Evolving role of SRE

Typical view of "SRE"

Development Team
"Developers"

conflicts
velocity vs. reliability

Operation Team
"SysAdmins"

"
I built it, I run it

DevOps

SRE Budget & SLO

SRE

"
What happens when you ask a software engineer to design an operations function

Evolving role of SRE

Looking from lens of solution life cycle

DCUT

Build/Regression

Test

architect

release

deploy

operate

monitor

Typical role SRE plays in

SRE

Design-Pattern

- ☑ Support Site Reliability Engineers with prioritization and resources

- ☑ SRE discipline is applied in the entire life cycle

SRE Roles

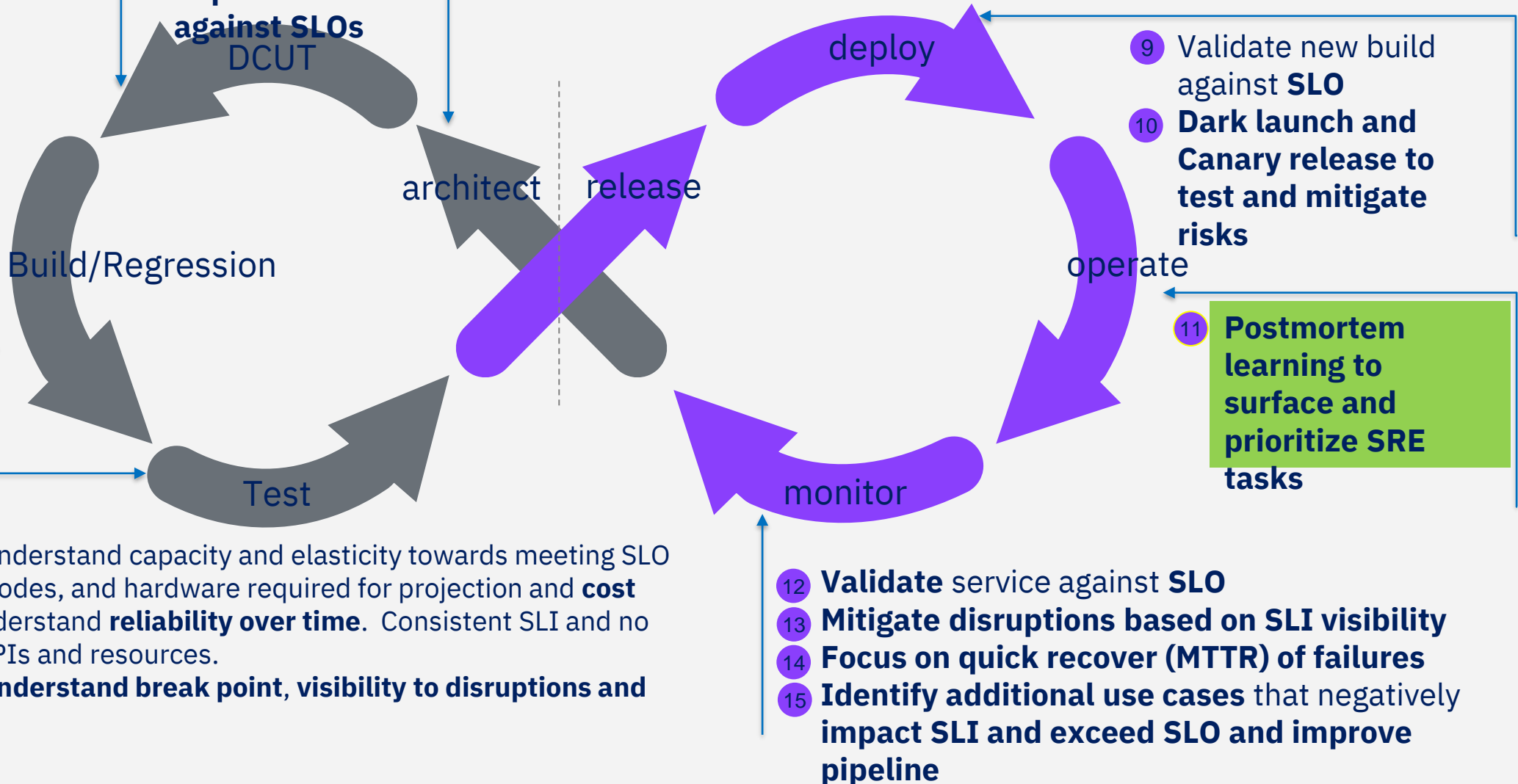**Data Driven, KPI Focused**
feature delivery

3 **Instrument** code
4 to **measure SLI and KPI**
Early **PoC** and **validate implementation against SLOs**
DCUT

start here **and iterate**
1 **Understand user commitments / SLA, Empathy Mapping**
2 Formulate **measurable SLI and SLO** meet commitments

5
BVT **measure SLI / KPI** of new build vs. previous. Success within established SLOs.

Build/Regression

architect   release

deploy

9 Validate new build against **SLO**
10 **Dark launch and Canary release to test and mitigate risks**

operate

11 **Postmortem learning to surface and prioritize SRE tasks**

Test

monitor

6 Scalability test to understand capacity and elasticity towards meeting SLO approximate # of nodes, and hardware required for projection and **cost**
7 Duration test to understand **reliability over time**. Consistent SLI and no upward trending KPIs and resources.
8 Resiliency test to **understand break point**, **visibility to disruptions and recovery**

12 **Validate** service against **SLO**
13 **Mitigate disruptions based on SLI visibility**
14 **Focus on quick recover (MTTR) of failures**
15 **Identify additional use cases** that negatively **impact SLI and exceed SLO and improve pipeline**

IBM

The Tenets of SRE

Definition of tenet

: a principle, belief, or doctrine generally held to be true

especially : one held in common by members of an organization, movement, or profession

Capture approaches to modernizing **"the way we work"** as we implement and provide services to our clients in a hybrid multi-cloud world.

Result in **tangible and identifiable outcomes**.

In Site Reliability Engineering these practices are often referred to as **"The Tenets of SRE."**
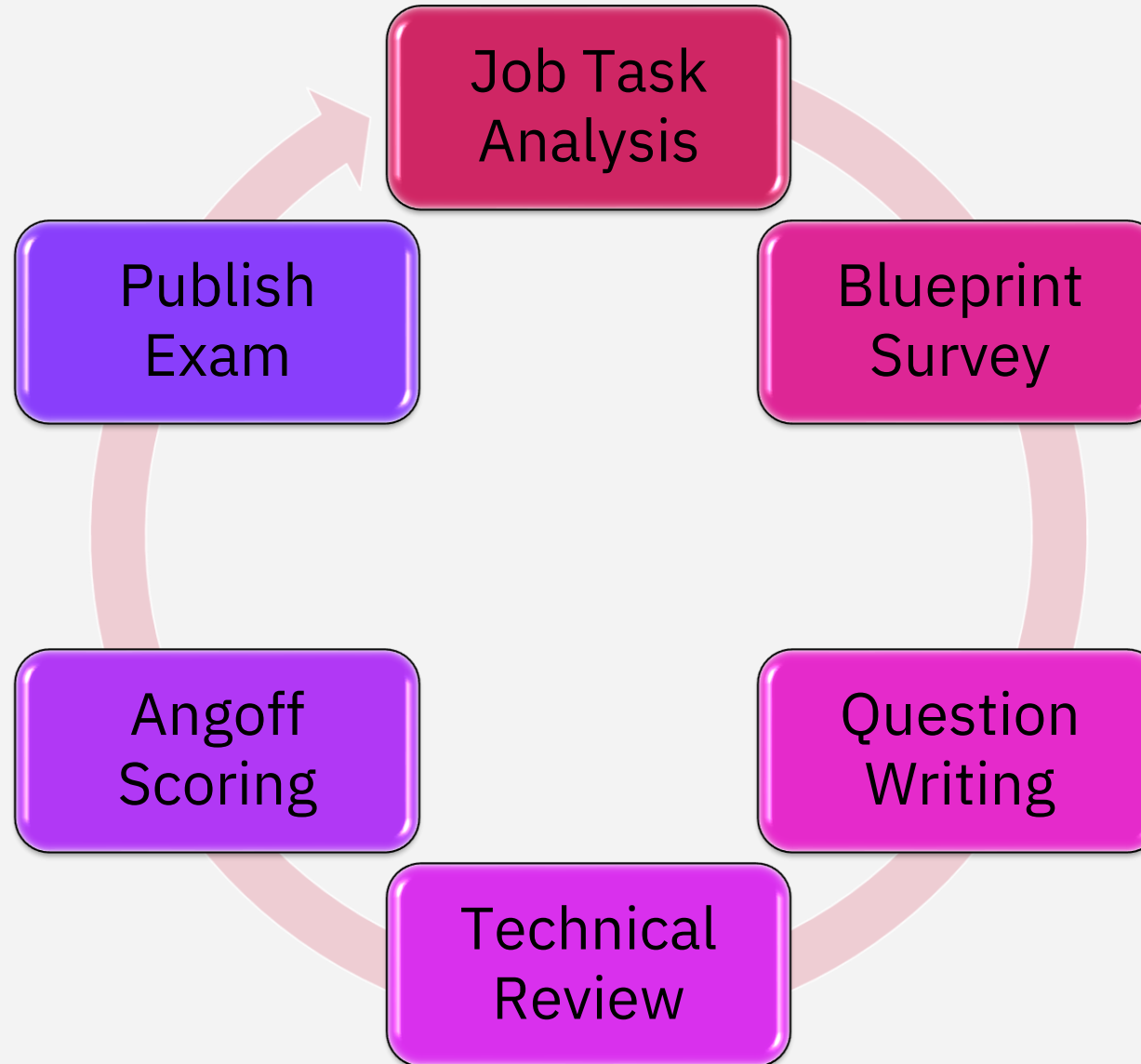
- \+ Scale Ops with Load
- \+ Cap Ops Load
- \+ Overflow Handling
- \+ Service Levels
- \+ Error Budget
- \+ Observability
- \+ Authority
- \+ Handle Enduser Alerts
- \+ Blameless Postmortems
- \+ Staffing Pool
- \+ Ops Readiness Review

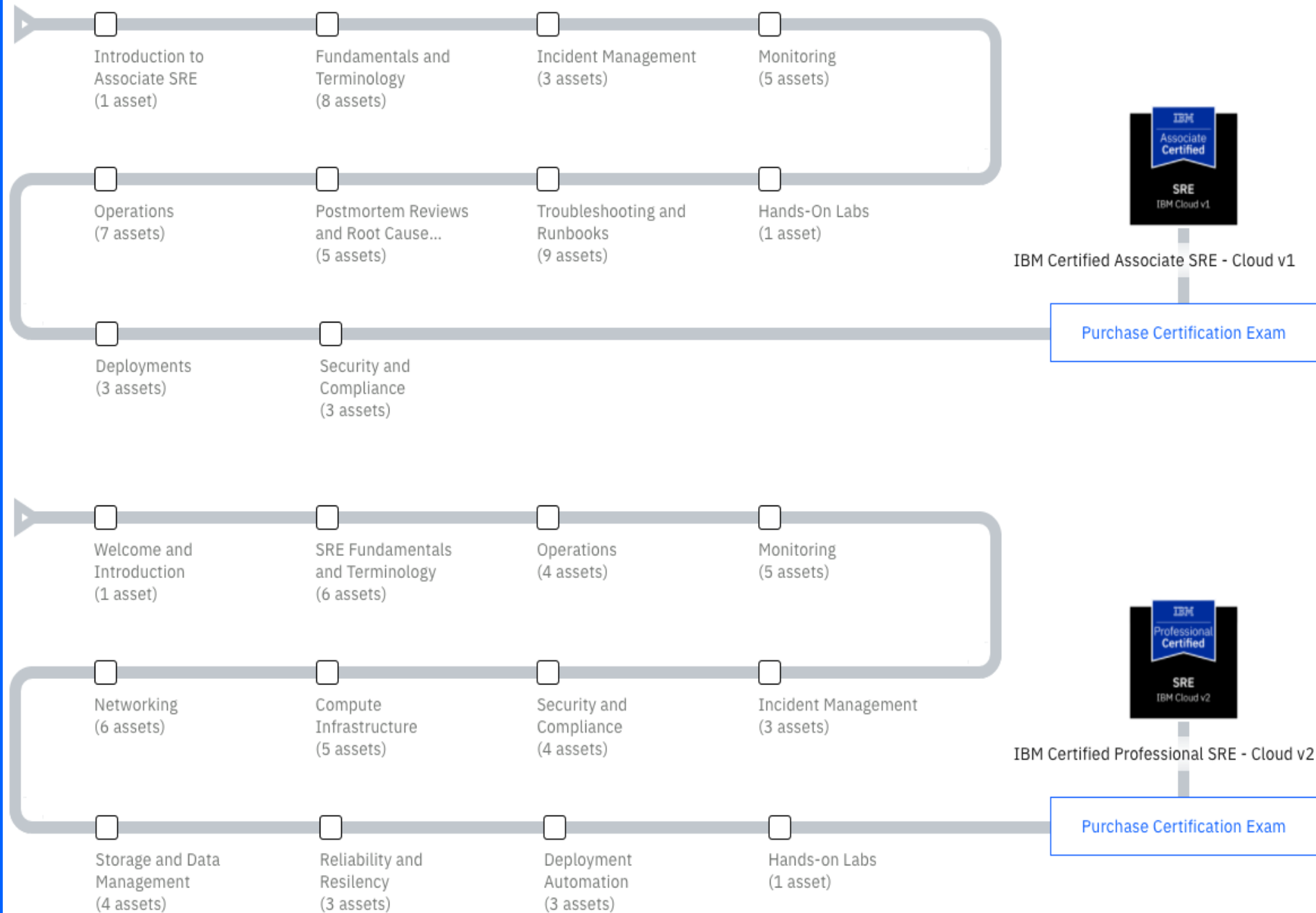# What should you know about IBM Cloud SRE certification?

- **What is the process?**
- **What are the variations?**
- **What content are tested?**

Certification Process

Associate vs. Professional SRE comparison

Introduction to Associate SRE (1 asset)

Fundamentals and Terminology (8 assets)

Incident Management (3 assets)

Monitoring (5 assets)

Operations (7 assets)

Postmortem Reviews and Root Cause... (5 assets)

Troubleshooting and Runbooks (9 assets)

Hands-On Labs (1 asset)

Deployments (3 assets)

Security and Compliance (3 assets)

IBM Certified Associate SRE - Cloud v1

Purchase Certification Exam

Welcome and Introduction (1 asset)

SRE Fundamentals and Terminology (6 assets)

Operations (4 assets)

Monitoring (5 assets)

Networking (6 assets)

Compute Infrastructure (5 assets)

Security and Compliance (4 assets)

Incident Management (3 assets)

Storage and Data Management (4 assets)

Reliability and Resiliency (3 assets)

Deployment Automation (3 assets)

Hands-on Labs (1 asset)

IBM Certified Professional SRE - Cloud v2

Purchase Certification Exam

Sources of IBM Cloud SRE education materials

IBM Garage Methodology

Foundational to the IBM Garage is a unique methodology that curates industry best practices layered with a depth of experience only IBM can bring. The IBM Garage combined with the IBM Garage Methodology can drive unprecedented transformational change.

Overview

IBM Garage Methodology

IBM integrates practices that are grounded in experience—from implementation at global scale through culture change—into a single, seamless end-to-end approach: the IBM Garage Methodology. The Methodology drives Enterprise Design Thinking at scale, is built on agile principles for colocated and distributed teams, leverages DevOps tools and techniques for continued delivery and operations, fosters digital talent and culture change, and enables Site Reliability Engineering.

The Methodology describes how to start implementing the practices in your organization. Workflows describe a set of activities that you need to complete to realize an outcome. For example, a workflow that describes how to define a minimum viable product (MVP) describes activities and related practices to create an implementable MVP.

Co-create
Discover
Envision
Learn
Culture
Co-operate
Operate
Develop
Reason
Co-execute

Home   Architectures   Courses   Adoption

← Architecture Center

Cloud service management architecture

Plan, design, and implement cloud operations to monitor and manage your cloud platform and the applications that run in the cloud.

Email an expert

Overview   Reference diagram   Constituent architectures   Resources

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AIOps
DevOps
Environment Ops
Service management
Site reliability engineering

IBM Cloud Service Management & Operations

Field Guide

IBM

Home › Exam Index › **C1000-119 : IBM Cloud Professional SRE v2** ›

IBM Cloud Professional SRE v2

C1000-119

IBM Cloud: Cloud Solutions

| Member login | Register for an exam | Certification Marketplace |

Help

| **Objectives** | Exam Preparation |

Number of questions: 61

Number of questions to pass: 40

Time allowed: 90 mins

Status: Live

An IBM Cloud Site Reliability Engineer (SRE) is a person who operates services that sustain service level objectives and engineers scalable, secure, and highly reliable and resilient services. They do this by infusing automation, DevOps principles, proactive maintenance, rigorous troubleshooting, and more for workloads on IBM Cloud.

Prerequisite Knowledge:

Understanding of:

- System Thinking
- DevOps practices

Related Certifications

IBM Certified Professional SRE - Cloud v2

View certificate here   ⌄

Sample Exam

The Sample Exam contains a subset of questions similar to those found on the actual

1 Applying Site Reliability Engineering Principles   13%

1. Manage the trade-off between Change, Velocity, and Reliability of the Service
2. Facilitate Blameless Postmortems
3. Identify Root Causes and Contributing Factors and Apply Software Engineering Principles Toward Mitigation
4. Negotiate Service Level Objective, Service Level Indicator, Error Budget
5. Apply Data-Driven, Scientific Approach to Fact-Finding
6. Design and Deploy Automation Strategies
7. Leverage IBM Cloud Tools and Technology Across the Software Development Life Cycle (SDLC)
8. Understand the roles and responsibilities for SRE effectiveness

2 Operations   11%

1. Monitor Resource Utilization
2. Perform Operational Readiness Review
3. Employ Cost-Optimization Strategies
4. Identify Key Metrics for Service

3 Monitoring and Incident Management   15%

1. Create and Maintain Metrics, Traces, and Alerts
2. Collect, Analyze, and Manage Logs on IBM Cloud
3. Manage Incidents
4. Perform Post Incident Review
5. Recognize and Differentiate Performance and Availability Metrics
6. Perform Statistical Analysis to Assess Trends and Create Actionable Outcomes

4 Security and Compliance   11%

Help

4 Security and Compliance	11%

1. Monitor Security Threats
2. Implement and Manage Security Policies
3. Implement Encryption Models
4. Manage Role-Based Access Control (RBAC) on IBM Cloud
5. Define the Shared Responsibility Model

5 Compute Infrastructure	10%

1. Troubleshoot VMs on IBM Cloud
2. Troubleshoot clusters on IBM Kubernetes Service (IKS)
3. Troubleshoot clusters on Red Hat OpenShift on IBM Cloud
4. Troubleshoot Serverless Services
5. Configure for High Availability and Scalability
6. Explain the impact of compute on service performance

6 Networking	8%

1. Troubleshoot external connections to IBM Cloud
2. Troubleshoot inter service connectivity on IBM Cloud
3. Explain the reliability ramifications of IBM Cloud Networking Features
4. Explain the impact of networking on service performance

7 Storage and Data Management	10%

1. Manage Storage and Data Attributes
2. Manage Data Replication and Retention
3. Explain the impact of storage on service performance

Help

7 Storage and Data Management	10%

1. Manage Storage and Data Attributes
2. Manage Data Replication and Retention
3. Explain the impact of storage on service performance
4. Data Security and Compliance
5. Storage and Data Durability
6. Storage and Data Capacity Management

8 Reliability and Resiliency	11%

1. Design and Improve Reliability for the System/Service
2. Design for Failure and Recovering from Failure

9 Deployment Automation	11%

1. Design Non-Disruptive Deployment
2. Troubleshoot Provisioning of IBM Cloud Resources
3. Implement Infrastructure as Code
4. Explain the responsibilities of the SRE to the CI/CD Pipelines
5. Troubleshoot CI/CD Pipelines

Related Certification

IBM Certified Professional SRE - Cloud v2

IBM Cloud : Cloud Solutions
PartnerWorld Code: C0007801

Help

Objectives	Exam Preparation

The sample test is designed to give the candidate an idea of the content and format of the questions that will be on the certification exam. Performance on the sample test is NOT an indicator of performance on the certification exam. This should not be considered an assessment tool.

PDF **Sample Test for Test C1000-119**

Use the study guide to help pass this exam. A study guide is an easy to follow document that will help you prepare for this exam. The guide is free and can be downloaded immediately.

PDF **Study Guide PDF here**

This exam has an Assessment Exam option: **A1000-119 Assessment: IBM Cloud Professional SRE v2**

Assessment exams are web-based exams that provides you, at a cheaper costs, the ability to check your skills before taking the certification exam.

This assessment exam is available in: English
Passing the exam **does not** award you a certification, and it is only used to help you assess if you are ready or not to take the certification exam.

You can register for it at Pearson VUE and it will provide you a score report, showing you how you did in each section.

Courses and publications are offered to help you prepare for the certification tests. The courses are recommended, but not required, before taking a certification test. When preparing for the certification test, keep in mind that real world experience is required to stand a reasonable chance of passing the certification test. Courseware does not replace the requirement for experience. Please note that course offerings are continuously being added and updated.

Learning Path

Related Certifications

IBM Certified Professional SRE - Cloud v2

View certificate here

Sample Exam

The Sample Exam contains a subset of questions similar to those found on the actual exam

Open Sample Exam PDF →

Available Languages

English

Help

Experiences of a newly certified IBM Cloud SRE

- **How did you study for it?**
- **What are the types of questions?**

Study Guide

Exam Objective Details

1. Applying Site Reliability Engineering Principles

1.1. Manage the trade-off between Change, Velocity, and Reliability of the Service

SUBTASKS

1.1.1. Identify the driving forces behind site reliability engineering including velocity, reliability, and availability
1.1.2. Quantify risks to the user experience
1.1.3. Define an Error Budget

1.2. Facilitate Blameless Postmortems

SUBTASKS

1.2.1. Identify challenges to blameless postmortem culture
1.2.2. Describe the problem management process
1.2.3. Identify the benefits of a war room to problem solving

1.3. Identify Root Causes and Contributing Factors and Apply Software Engineering Principles Toward Mitigation

SUBTASKS

Sample Exam

Certified for

IBM | Cloud

Exam C1000-119
IBM Cloud Professional SRE
Sample Test

1. What describes the maximum amount of time a system can fail or underperform without contractual consequence for any given month?

   A. Error Budget

   B. SLI

   C. SLO

   D. KPI

2. Where should a team start when trying to reduce error prone manual steps arising from the technical debt?

   A. Automation

   B. Monthly Billing Report

   C. Technical Design Documents

   D. Error Catalog

Assessment Exam

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Learning Path

IBM Cloud Professional Site Reliability Engineer v2

This learning path provides approximately 20 to 30 hours of content, including practice exercises in a virtual lab environment.

Sample Exam

The Sample Exam contains a subset of questions similar to those found on the actual exam

Open Sample Exam PDF   →

Available Languages

English

Help

22

Certification Questions

- Example 1

A service owner is stating that their service needs to have an SLO of 99.99%. Why might the SRE team suggest a lower more appropriate target?

A. Meeting the 99.99% target is too hard to achieve
B. Users can't tell the difference between very high levels of availability anyway
C. The target is something that should be exceeded but not by too much to support the error budget
D. This is a new service so the availability target shouldn't be that high

Certification Questions

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Certification Questions

- Example 2

What is a responsibility of the First Responder role in a Cloud Service Operation Management structure?

A. Responsible for identifying the root cause of the incident
B. Responsible for receiving incident information and collaborates with SMEs to restore services as fast as possible
C. Responsible for overseeing the handling of a problem and to bring it to closure
D. Responsible for executing runbooks and working with subject matter experts (SMEs) to restore the service

Certification Questions

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IBM Certified Professional SRE - Cloud v2

Issued by [IBM Professional Certification](#)

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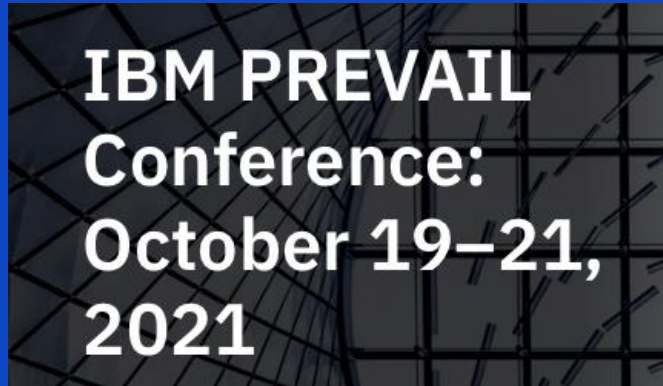
Skills

| Automation | CI/CD | Cloud | Network Customization | PWID-C0007801 | Red Hat OpenShift |

| Security |

Earning Criteria

☑ [Successful completion of IBM Certified Professional SRE - Cloud v2 exam](#)

Type: Certification

Level: Intermediate

Cost: Paid

Resources you can use

IBM PREVAIL Conference: October 19–21, 2021

Event Devoted for: IT resilience, performance, security, quality testing and SRE

https://ibm.biz/BdfgnD

- Join the Expert TV for the latest news and hot topics in cloud training:
    - https://ibm.biz/ICCTonExpertTV

- Join the discussion forum and connect with IBM Cloud Experts & Curriculum Managers:
    - http://ibm.biz/cloudtrainingdiscussionforum

- Look for new IBM Cloud role-based certifications on the ICCT web page:
    - www.ibm.com/training/cloud/jobroles

Q&A