Tech Hui

November 2020

Daniel Larsen – Senior Customer Engineer – FastTrack for Azure

Well-Architected Framework – Reliability in the Cloud

Microsoft

Azure

Microsoft Azure

Well-Architected Framework

Reliability in the Cloud

Daniel Larsen
Senior Customer Engineer
FastTrack for Azure

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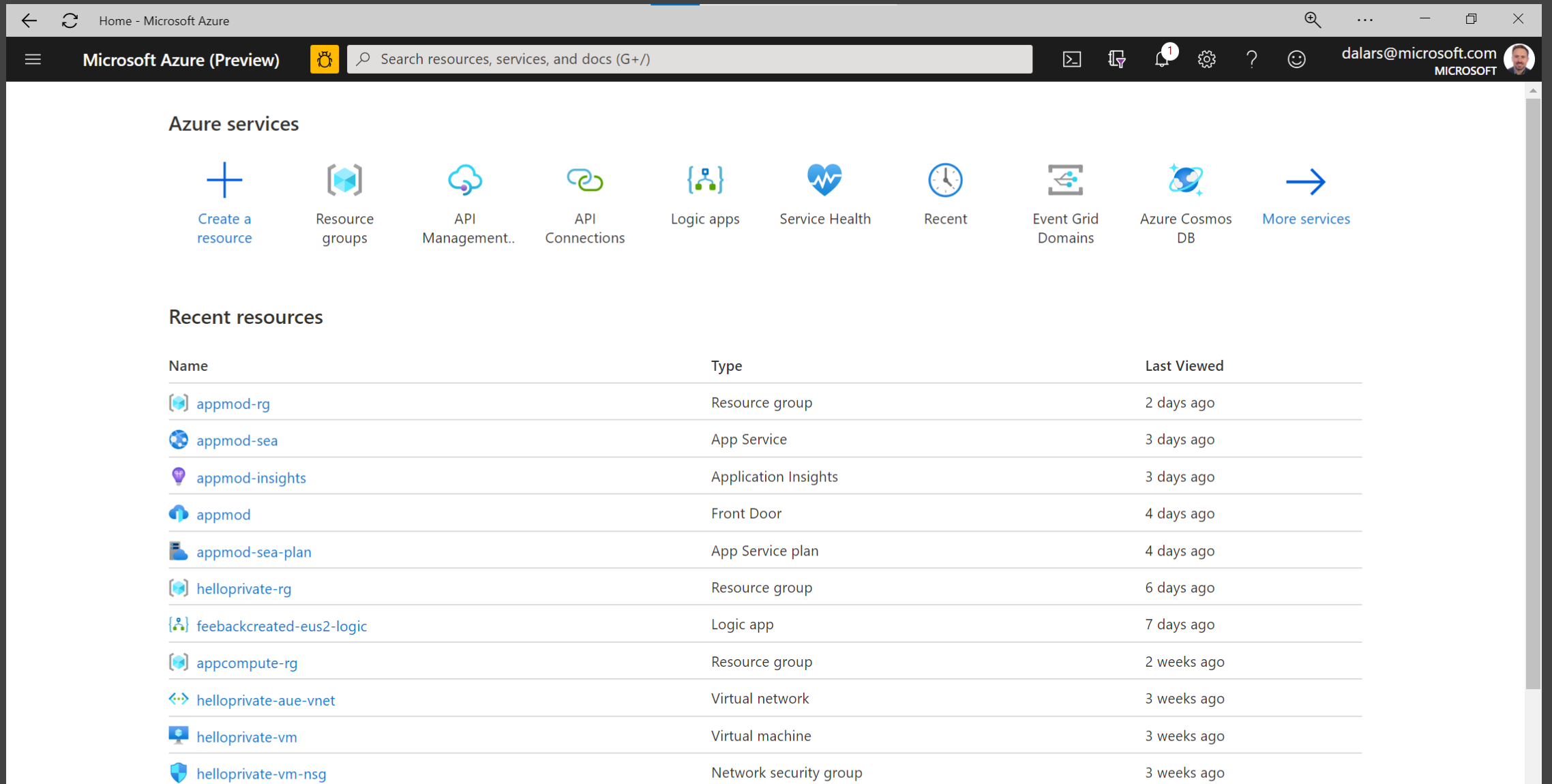
I work for Azure Engineering



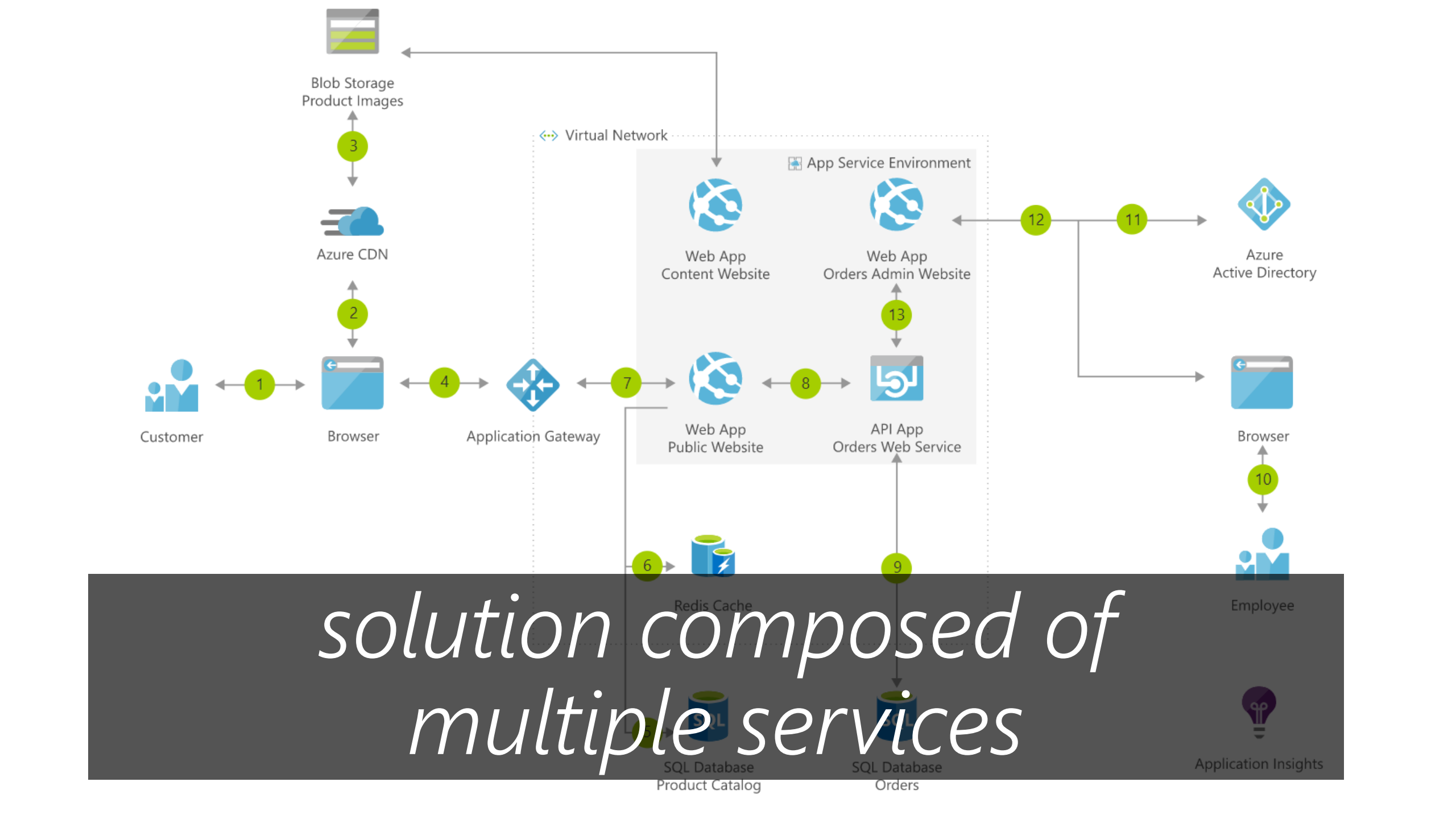
In this session

I. Architecture in the cloud

II. Architecture design session

III. Reliability pillar

IV. Architecture review



solution composed of multiple services

I. Architecture in the cloud

https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/cloud-architecture.md

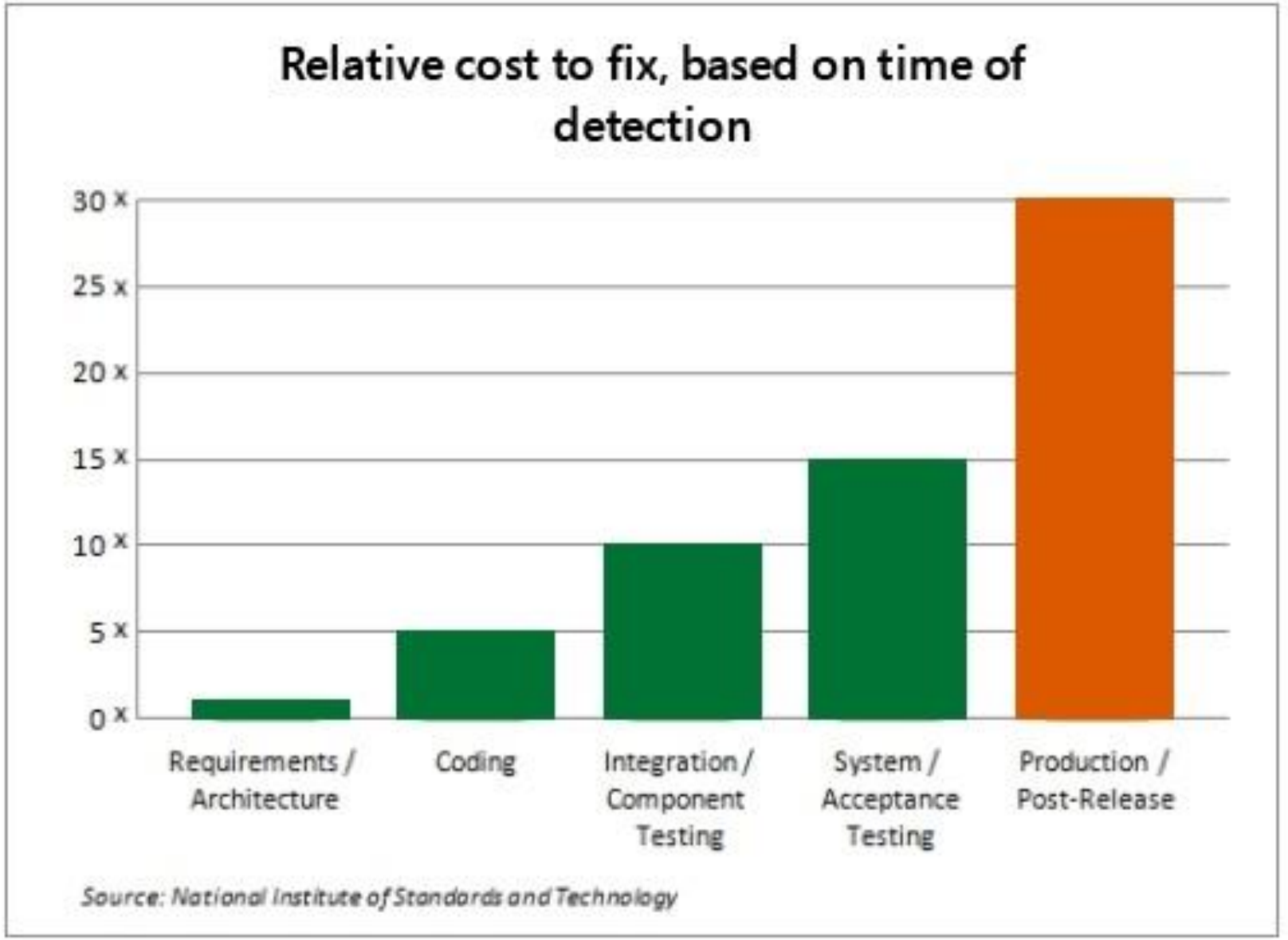
The role of the Architect

"Architect" can be a role, not just a job title

Important every engineer learns Cloud architecture patterns & practices

Do we need Architects in Agile?

https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/cloud-architecture.md



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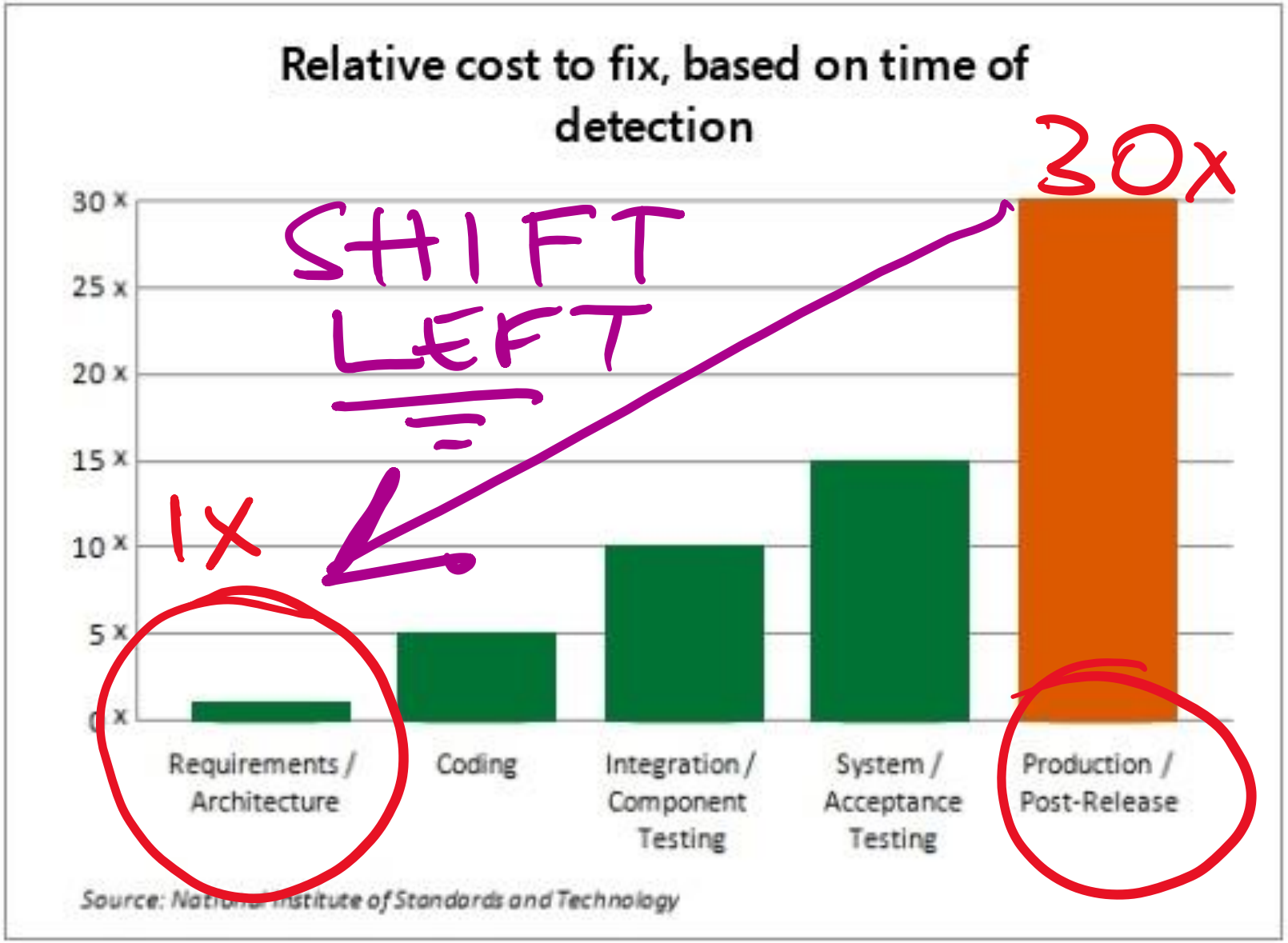

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Microsoft Azure Well-Architected Framework

Reliability

Operational excellence

Performance efficiency

Security

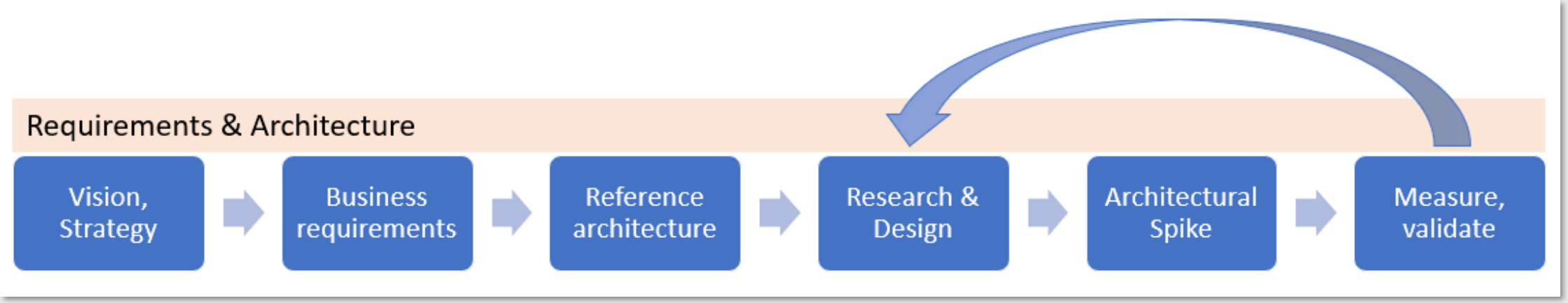
Cost optimization

https://docs.microsoft.com/en-us/azure/architecture/framework/

II. Architecture design session

Example

Architecture design session



https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/cloud-architecture.md#architecture-design

III. Reliability pillar

https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/reliability.md

Availability and Recovery

Architecting for reliability ensures that your application can meet the commitments you make to your customers.

This includes ensuring that your systems are *available* to end users and can *recover* from any failures.

https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/reliability.md

Uptime, RTO, RPO

Uptime:
The target uptime for a system, usually measured as a percentage

Recovery time objective (RTO):
The maximum duration of acceptable downtime

Recovery point objective (RPO):
The maximum duration of acceptable data loss

Example

IV. Architecture review

https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/reliability.md#architecture-review

Pop quiz

Q. What is the composite uptime for the solution above?
(from the point of view of an API user)

A. 99.99%?

B. 99.9%?

C. Less than 99.9%?

https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/reliability.md

Improving uptime

Enable features that offer higher availability and shorter recovery times

Deploy across multiple *Availability Zones* (AZs) or multiple Azure Regions

Write *Run books*; Standard operating procedures for *failure modes*

Embrace *Degraded mode*

Document support processes; have a clear line of sight to Azure Support with a suitable SLA for *incident response time*

https://github.com/Azure/fta-cloudarchitecture/blob/master/docs/reliability.md

```
# Runbook: Service Bus persistent failure

Failure mode: Service Bus has is not responding to repeated retries after 1 minute

1. Wake up Bob
2. Try redeploy Service Bus, new namespace, same region:

   PS> ./deploy-sb -Name 'mysaasapp2-aue-bus' -Region 'Australia East'

   If success, change connection string in Azure Configuration Service

   PS> ./failover-sb -NewPrimary 'mysaasapp2-aue-bus' -Region 'Australia East'

   If not success, Try redeploy Service Bus, new namespace, secondary Region

   PS> ./deploy-sb -Name 'mysaasapp2-ase-bus' -Region 'Australia Southeast'

   Change connection string in Azure Configuration Service

   PS> ./failover-sb -NewPrimary 'mysaasapp2-ase-bus' -Region 'Australia Southeast'

3. Monitor until primary recovers and then run failback Runbook

(etc…)
```

https://github.com/DanielLarsenNZ/talks/tree/main/servicebus-ha

Summary

I. Architecture in the cloud

II. Architecture design session

III. Reliability pillar

IV. Architecture review

Thank you!

Microsoft

http://bit.ly/dlnztalks

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