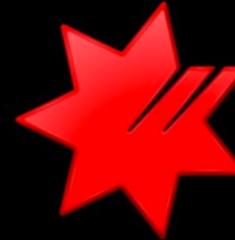




splunk>



National
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Bank

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Running a Multi-Tenant, AWS Splunk Platform Within Financial Services Principles and Challenges

Oliver Murphy – Head of Monitoring, Analytics and Diagnostics, National Australia Bank

Katherine Shaw – Senior Technology Architect, Accenture

October 2018 | Version 1

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During the course of this presentation, we may make forward-looking statements regarding future events or the expected performance of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results could differ materially. For important factors that may cause actual results to differ from those contained in our forward-looking statements, please review our filings with the SEC.

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National
Australia
Bank

For 160 years, we've been helping our customers with their money. Today, we have more than 30,000 people serving nine million customers at more than 900 locations in Australia, New Zealand and around the world. As Australia's largest business bank, we work with small, medium and large businesses to help them start, run and grow. We fund some of the most important infrastructure in our communities – including schools, hospitals and roads. And we do it in a way that's responsible, inclusive and innovative. Visit us at www.nab.com.au.

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Enterprise Service

Splunk at NAB in 2018

1600

99.997%

3

3+ TB

25+

**Users from
35 teams**

Service availability

Production clusters

Data indexed per day

Deployments per day

* Metrics from internal Accenture / NAB research 2018

Application Management Benefits

Impact from initial deployment



84%

Reduction in
incident
investigation
time



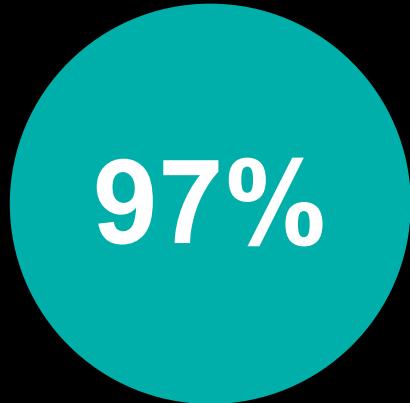
27%

Reduction in
cost per
incident



93%

Reduction in
time to check
incident
impact



97%

Reduction in
defect log
analysis effort

* All statistics from internal Accenture / NAB research into core banking application support activities (2015)

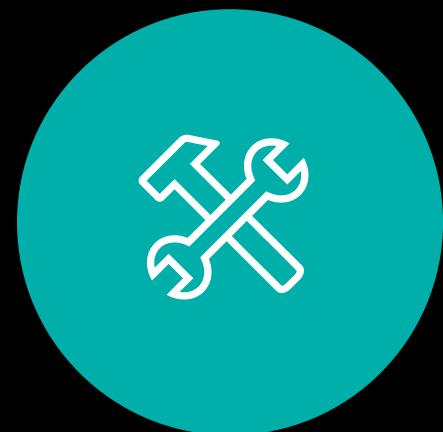
Our Splunk Journey

Think about the future...



Fundamentals

From Proof of Concept to Enterprise Capability



1) Building a platform – engineering principles



2) Running a service



3) Growing a community

Building a Platform

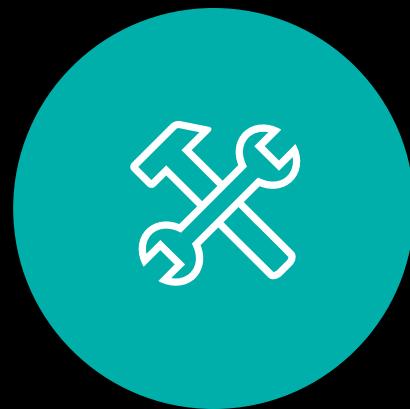
Engineering Principals

Building a Platform

Modern engineering principals



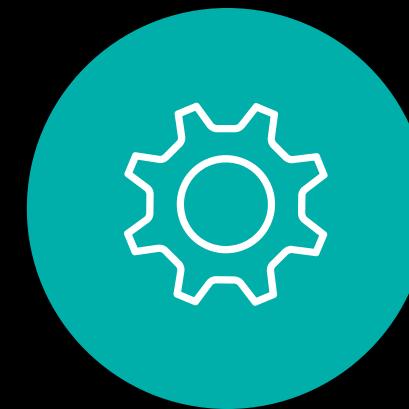
Cloud Infrastructure



Everything-as-code



DevOps and Automation

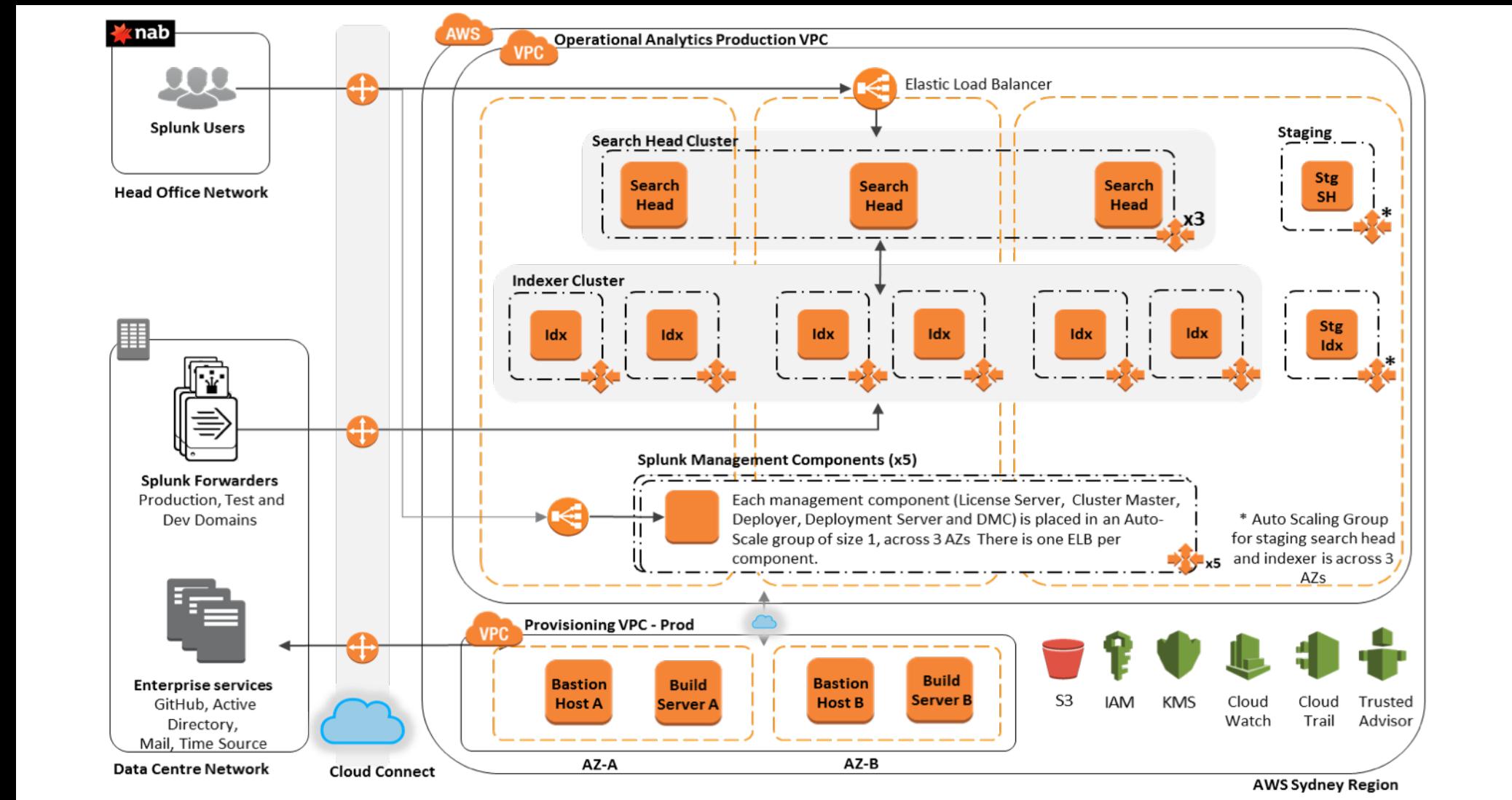


Patterns and Reuse

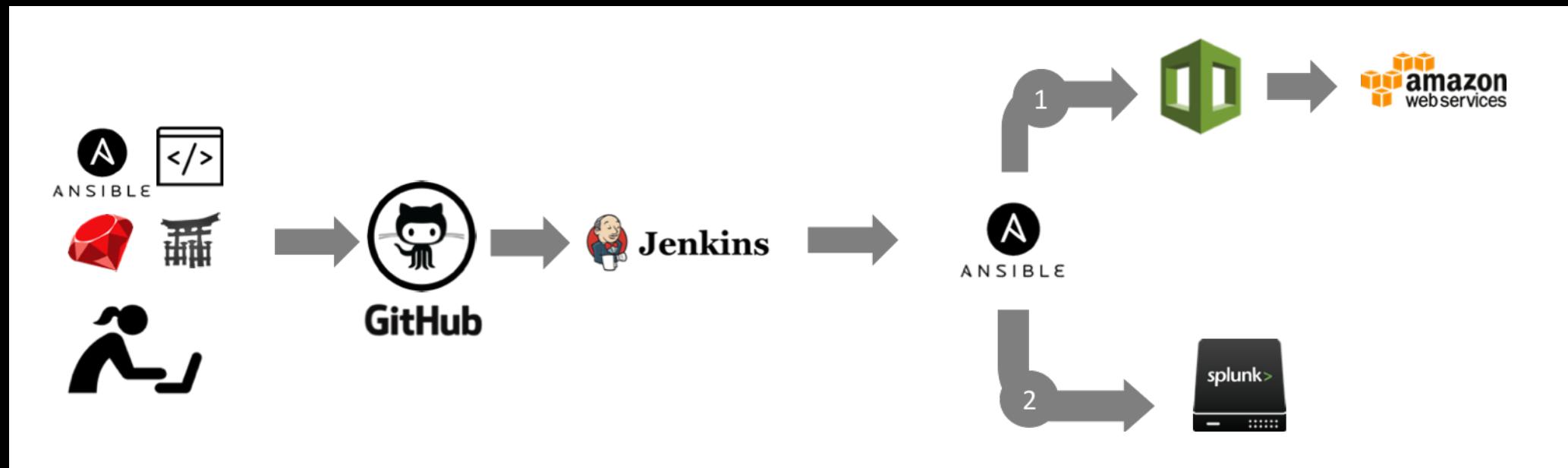


Instrument and Monitor

Platform Architecture



Build Automation



Running a Service

Operating a Multi-Tenant Splunk Service

Service Fundamentals

Understand your customers

- ▶ Ensure appropriate access to data
 - ▶ Be easy to deal with
 - ▶ Move fast
 - ▶ Understand and manage costs
 - ▶ Listen to customer requirements
 - ▶ Collect and action feedback



“Like creating any great product, creating great platforms that **everyone loves** doesn’t happen by accident. An internal platform with poor customer focus will likely create tools that everyone will hate and quickly abandon...”

The DevOps Handbook - Gene Kim, Jez Humble, Patrick Debois and John Willis

Running a Service

Creating a service that continues to deliver

- ▶ **Monitor and measure** – Splunk to manage Splunk
 - Infrastructure and application monitoring and automated health checks
 - Automated ticket management and resolution
 - DevOps analytics (JIRA, GitHub, Jenkins, Ansible)
- ▶ **Control change** – protect the service
- ▶ **Enable agility** - self service automation to empower users
- ▶ **Evolve the architecture** – scaling and hybrid search



The nabCERT Migration TTV Dashboard provides basic checks / TTV for nabCERT migration project.

Filter Options:

- Select Index: nabcert_ekamai_api
- Select Enterprise: PPTE
- Indexer/Forwarder Throughput: Click Here
- Show Filters

Dashboard Components:

- nabCERT: On-prem**: Total event count: 9,130
- nabCERT (ppt): AWS**: Total event count: 9,130
- nabCERT (Splunk Enterprise): AWS**: Total event count: 72,432
- Forwarders**: Select Time: Last 24 hours, Select Forwarder: ncpdpkps001.aui.national...
- nabCERT: On-prem**: Average instantaneous events per second and KB per second indexed over time. Line chart showing event counts from 4:00 PM Mon Sep 3 2018 to 12:00 PM Tue Sep 4 2018. Legend: avg_instantaneous_apx (yellow), avg_instantaneous_kbpx (red).
- nabCERT: On-prem**: Number of events indexed over time. Line chart showing event counts from 4:00 PM Mon Sep 3 2018 to 12:00 PM Tue Sep 4 2018. Legend: sum(events) (blue).
- nabCERT (ppt): AWS**: Average instantaneous events per second and KB per second indexed over time. Line chart showing event counts from 4:00 PM Mon Sep 3 2018 to 12:00 PM Tue Sep 4 2018. Legend: avg_instantaneous_apx (yellow), avg_instantaneous_kbpx (red).
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- nabCERT (Splunk Enterprise): AWS**: Number of events indexed over time. Line chart showing event counts from 4:00 PM Mon Sep 3 2018 to 12:00 PM Tue Sep 4 2018. Legend: sum(events) (blue).

App Development and Deployment

Supporting rapid change and ensuring platform stability

Check	Status
sh-all-time-check	FAILURE
sh-data-visibility-check	SUCCESS
sh-filename-check	SUCCESS
sh-index-star-check	SUCCESS
sh-indexes-conf-check	SUCCESS
sh-is-configured-check	SUCCESS
sh-local-directory-check	SUCCESS
sh-local-meta-check	SUCCESS
sh-log-check	SUCCESS
sh-lookup-size-check	SUCCESS
sh-read-permission-check	FAILURE
sh-real-time-check	SUCCESS
sh-refresh-rate-check	FAILURE
sh-schedule-check	SUCCESS
sh-ui-visibility-check	SUCCESS

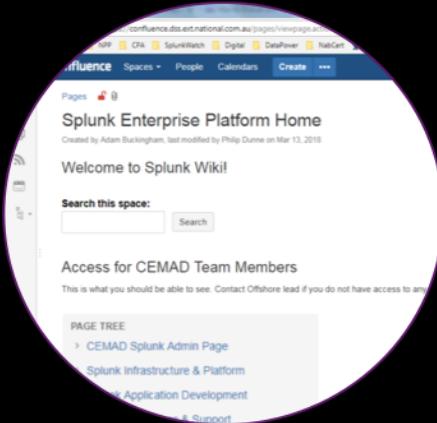
- ▶ Application frameworks and templates (Accenture myWizard) to accelerate development
- ▶ Automation to merge local and default changes from UI in development environments and check into source control
- ▶ Custom test framework to detect common issues prior to production deployment
- ▶ Continuous delivery pipeline using git, Jenkins and Ansible

Growing a Community

Supporting and developing users

Splunk Community

Empower users



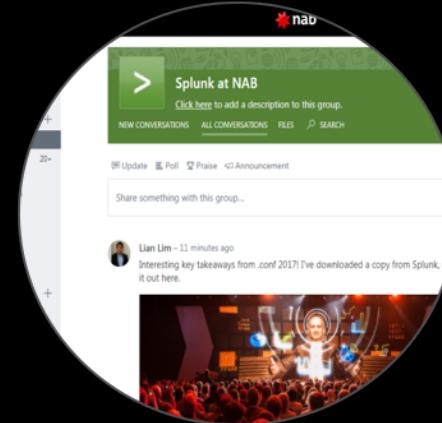
Wiki



Training



Drop-ins



Yammer / Workplace



Community of Practice

Splunk Welcome App

The screenshot shows the Splunk Welcome app interface. At the top, there's a navigation bar with 'splunk>' and 'App: Welcome to Splunk'. On the right of the bar are links for 'Messages', 'Settings', 'Activity', 'Help', and 'Find'. A red star icon with the word 'nab' is on the far right. Below the bar, there's a 'Welcome!' button, a search bar, and a 'Dashboards' link. The main content area starts with a 'Welcome!' message and a cartoon character icon. To the right is a large green button with a white greater-than sign. Below this is a note for Splunk users about raising incidents and a link to the Digital Tenant Wikipedia page. There are two sections: 'Learn' (with links to the Quick Reference Guide, Q&A, Search Commands Cheatsheet, and Overview) and 'Help' (with links to Raise JIRA ticket, CEMAD Splunk Wiki, Options for ACF Form, and Contact Us). Below these are four summary cards: 'Status' (Server: splunk-sh-1), 'Number of Indexes Available' (338), 'Number of Sourcetypes Available' (478), 'Number of Sources Available' (4,975), and 'Number of Hosts Available' (1,570).

Welcome!

Welcome to Splunk Enterprise! >

A Note to Splunk users: Please raise Incidents/Service Requests at [go/splunksupport](#).

- For new Digital users, instructions for platform use are available at the [Digital Tenant Wikipedia](#).

Learn

- [Splunk Quick Reference Guide](#)
- [Splunk Q&A](#)
- [Splunk Search Commands Cheatsheet](#)
- [Splunk Overview](#)

Help

- [Raise JIRA ticket for Service Requests](#)
- [CEMAD Splunk Wiki](#)
- [Options for ACF Form](#)
- [Contact Us](#)

Status	Server	Performance	Last update
?	splunk-sh-1		

Number of Indexes Available	Number of Sourcetypes Available	Number of Sources Available	Number of Hosts Available
338	478	4,975	1,570

splunk> .conf18

Where are we now?

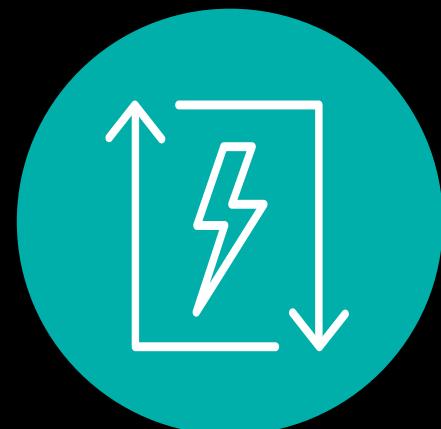
Enterprise Monitoring, Analytics and Diagnostics Service



IT Operations



Security



DevOps / Application Development



Business and Process Analytics

The image shows a laptop screen with the MAD (Monitoring, Analytics & Diagnostics) interface. The top navigation bar includes the MAD logo, Home (which is selected), Monitoring, Analytics, and Diagnostics. The nab logo is in the top right corner. The main title "Monitoring, Analytics & Diagnostics" is displayed prominently. Below it, there are two sections: "Inner Source Monitoring" and "External Source Monitoring", each containing a grid of monitoring items.

Monitoring, Analytics & Diagnostics

Inner Source Monitoring

Desktop	Email	PBOP	Siebel	BWB
eBOBS	Internet	Intranet	Mobility	VCCI

External Source Monitoring

Internet Banking	nab.com.au	NAB Connect	nab trade	NAB Transact
Telephone Banking	ATM	EFTPOS	Payments/Accounts	uBank

Key Takeaways

Building and running a multi-tenant service

1. Platform build - engineering principals
2. Service mindset
3. Community development

Q&A

Oliver Murphy | NAB
Katherine Shaw | Accenture



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Thank You

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in the .conf18 mobile app



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