

# Instrumenting DevOps for Application TCO and Compliance



# Welcome



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Principal Technical Architect CTO

@BMMc. | [linkedin.com/in/brianmccarty](https://linkedin.com/in/brianmccarty)



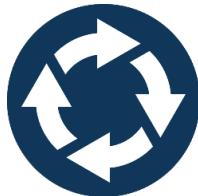
Cloud Governance



Architecture



Technology Business Management



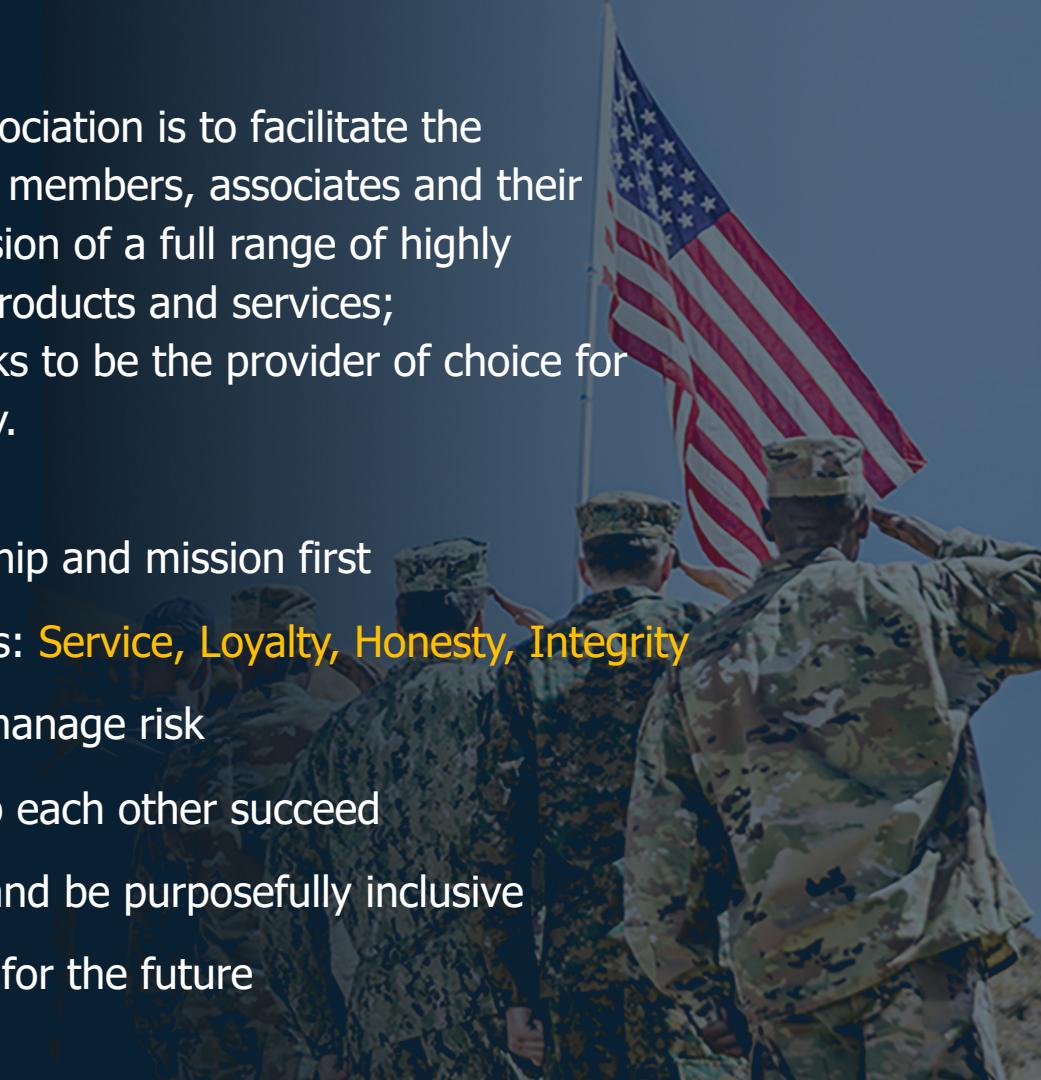
Agile

## OUR **MISSION**

The mission of the association is to facilitate the financial security of its members, associates and their families through provision of a full range of highly competitive financial products and services; in so doing, USAA seeks to be the provider of choice for the military community.

- Keep our membership and mission first
- Live our core values: **Service, Loyalty, Honesty, Integrity**
- Be compliant and manage risk
- Build trust and help each other succeed
- Embrace diversity and be purposefully inclusive
- Innovate and build for the future

## THE USAA **STANDARD**



# About USAA



## Insurance



## Banking



## Investments

### Security

USAA helps stop 18+ million cyber attacks and prevents \$16 million in fraud loss daily



### Corporate Responsibility

USAA, USAA Federal Savings Bank and The USAA Foundation, Inc. invested \$43 million in philanthropic initiatives nationwide



### Financials

Nearly \$36 billion in the revenue and net worth



### Technology

USAA Labs had 6,000+ employee submissions and implemented 567 new ideas that benefit of members and employees



# Our USAA Family



**Over 30,000+**  
employees provide  
legendary service and  
quality products.



**4,400+**  
technology, design and  
digital professionals.



**96% retention**  
rate for technology staff.



# Topics

Background & Key Terms

Controls Automation

App TCO Calculation

Method

What's Next?



# Background



# Background



Demands



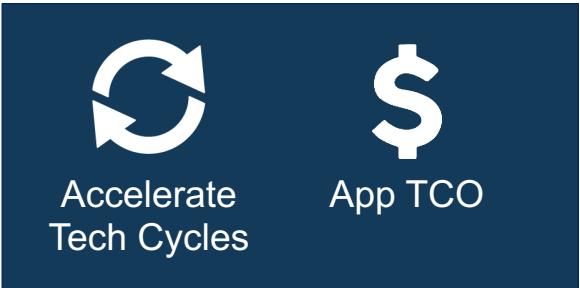
# Background



## Demands



## Desires



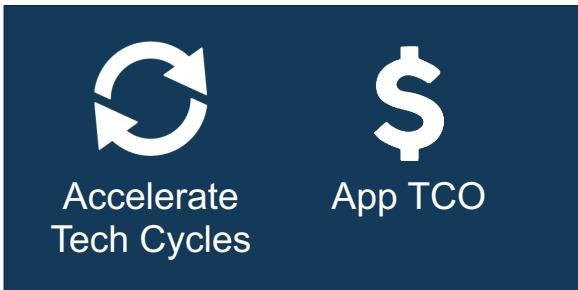
# Background



## Demands



## Desires



# Background



# Background



# Background



# Key Terms



## General Controls

...ensure the proper development and implementation of systems, and the integrity of program and data...



## Application Portfolio Management



## CMDB



## App TCO

### General controls

Controls, other than application controls, that relate to the environment within which application systems are developed, maintained, and operated, and that are therefore applicable to all the applications at an institution. The objectives of general controls are to ensure the proper development and implementation of systems, and the integrity of program and data files and of computer operations. Like application controls, general controls may be either manual or programmed. Examples of general controls include the development and implementation of an IT strategy and an IT security policy, the organization of IT staff to separate conflicting duties and planning for disaster prevention and recovery.

# Key Terms



## General Controls

...architectural practice of managing the application inventory containing all information about and health, value, support of the applications...



## Application Portfolio Management

Architecture | Health | Value | Support



## CMDB



## App TCO

# Key Terms



## General Controls

(a part of Change Management System)...tools and data that is used for collecting, storing, managing, updating, analyzing and presenting data about all configuration items and their relationships.



## Application Portfolio Management



## CMDB



## App TCO



# Key Terms



## General Controls

...sum-total of all direct and indirect costs used to support expense management and chargeback, estimate business value and rationalize applications...



## Application Portfolio Management



## CMDB



## App TCO

End User Services			Delivery Services				Platform Services			Infrastructure Services				Emerging
Client Computing Computer User Bring Your Own Device Virtual Client	Communication & Collaboration Collaboration Communication Productivity	Connectivity Network Access Remote Access	Strategy & Planning Technology Business Innovation & Ideation Enterprise Architecture Program, Product & Project Business System Business Solution Competitor Analysis IT Vendor Management	Development Design & Development System Integration Testing	Support Service Desk Application Support IT Frame Central Help	Operations IT Service Management Event Management Scheduling Capacity Management Deployment Administration	Security & Compliance Identity & Access Management Security Awareness Community & Governance Risk & Compliance Business Continuity & Disaster Recovery	Data Data Privacy & Security Data Governance Data Management Data Warehouse	Applications Application Hosting Message & Integration Cloud Application Data Analytics & Knowledge	Data Center Enterprise Data Center Other Data Center	Network Data Network Physical Compute Virtual Compute Compute Infrastructure Domain Services Load Balancing	Compute Virtual Private Cloud Compute Infrastructure Compute & Active Directory Distributed Storage (D2D)	Storage Data Storage Networked Storage Cloud Storage Object Storage Archive Storage Data Maintenance	Internet Of Things Virtual Reality / Augmented Reality AI & Cloud
<b>IT Towers &amp; Sub-Towers</b>														
▲ Data Center Enterprise Data Center Other Facilities	▲ Compute Compute Data Center Data Center Data Center Converged Infrastructure Hyperconvergence	▲ Storage Storage Cloud Storage Object Storage Wearhouse Cloud Storage Wearhouse Office Storage	▲ Network Network LAN WAN Transport	▲ Platform Platform Database Relational Database NoSQL Database NoSQL Database NoSQL Database	▲ Output Control Panel Mobile Devices Mobile Printers Mobile Printers Mobile Printers Mobile Printers	▲ End User Control Panel Mobile Devices Mobile Printers Mobile Printers Mobile Printers Mobile Printers	▲ Application Application Development Applicatior Support & Operations Business Software	▲ Delivery Delivery Management Program, Product & Project Management Business Software	▲ Security & Compliance Security Compliance Data Privacy & Security Data Governance	▲ IT Management IT Management & Monitoring Enterprise Architecture IT Vendor Management	<small>▲ Benchmark Data Available In Appdox IT Benchmarking</small>			
<b>Cost Pools &amp; Sub-Pools</b>														
OpEx	▲ Internal Labor Expense	▲ External Labor Expense	▲ Outside Services Consulting Management Service Provider Cloud Service Provider	▲ Hardware Equipment Maintenance & Support Depreciation & Amortization	▲ Software Software Maintenance & Support Depreciation & Amortization	▲ Facilities & Power Facilities Maintenance & Support Depreciation & Amortization	▲ Telecom Expense Maintenance & Support Depreciation & Amortization	▲ Other Other	▲ Internal Services By Shared Service	<small>▲ Benchmark Data Available In Appdox IT Benchmarking</small>				
CapEx	Capital	Capital	Capital	Capital	Capital	Capital	Capital	Capital		<b>Actual &amp; planned costs</b>				

<https://tbcouncil.jiveon.com/docs/DOC-11636>

Labor  
Hardware  
Software  
Services

# Regulatory Example



## DEVELOPMENT AND ACQUISITION

[Home](#) / [IT Booklets](#) / [Development and Acquisition](#) / [Development Procedures](#) / [Systems Development Life Cycle](#) / [Maintenance Phase](#)

Development and  
Acquisition Booklet  
Contents

[Introduction](#)  
[Examination Objectives](#)  
[Standards](#)

### Maintenance Phase

The maintenance [phase](#) involves making changes to hardware, software, and documentation to support its operational effectiveness. It includes making changes to improve a system's performance, correct problems, enhance security, or address user requirements. To ensure modifications do not disrupt operations or degrade a system's performance or security, organizations should establish appropriate change management standards and procedures.

<https://ithandbook.ffiec.gov>

# Regulatory Example



## DEVELOPMENT AND ACQUISITION

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**Regulators describe the requirement not the implementation**

<https://ithandbook.ffiec.gov>

# Demo Time!

Controls Automation

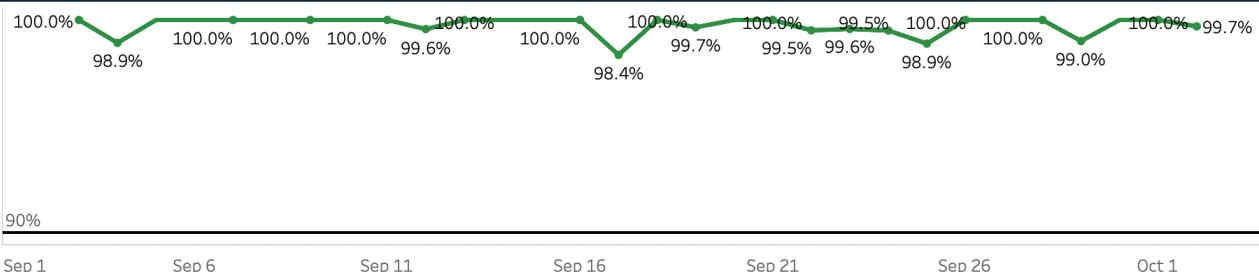
App TCO Calculation



# Control Example

## Detail Evidence for SNOW CTRL-106156 (Latest run only, click on items for full details)

Pass	Fail
664	2



### Change Requests have Unit Approvals

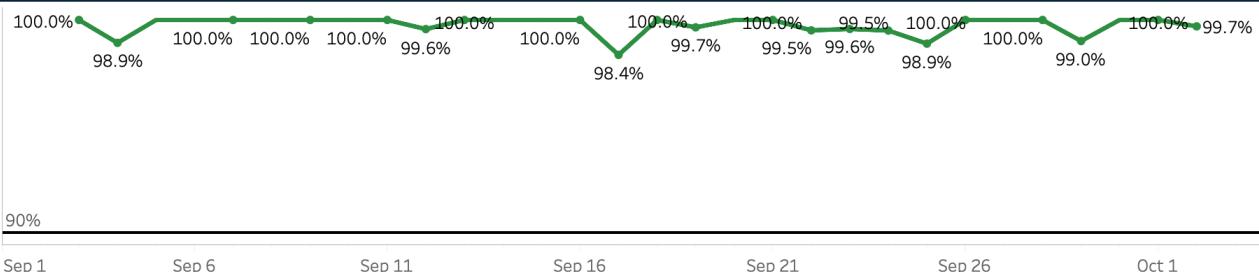
ITCM Unit Approval Sign off(aka IT-Release Mgt - Changes are Reviewed and Authorized) After change requests have been tested, the change request must be reviewed and authorized by a Unit-level Manager or delegated management tool. This structured review, assessment and approval of the change request prior to implementation mitigates the risk of unauthorized change to production.

TPM Application	Status	Reason	CR Number	Release Integration Area	Approver	Approver Date	State
	Fail	Unit approval was not received prior to Change Request work start time	CHG0695201	PI API Authorization & Management		2020-09-23 15:01:47 - / (Approval history)..	Closed
	Fail	Unit approval was not received prior to Change Request work start time	CHG0698703	Workforce Digital Services	M	2020-09-29 16:20:46 - / (Approval history)..	Closed

# Control Example

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# My Domain, Control DQ-ITSM-1

Met 30

Not Met 3

Display My Apps  Display All Apps

**BARR Risk Level**

**Portfolio** (All) **BARR Risk Level** (All)

**Domain** (All) **Control Id** DQ-ITSM-1

**Application\_** (All) **Status Selection (only on details)** (All)



Portfolio	Domain	Application	BARR Risk Level	Application Owner	Business Owner	Application Details	Met	Needs Attention	Not Met	Trend
Corporate Portfolio	Technology Management		Critical			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			High			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			High			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	0	1	1	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	0	1	1	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
			Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>
Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>			
Low			<a href="#">View</a>	1	0	0	<a href="#">View</a>			

# Control Not Met

Met 30

Not Met 3

Display My Apps  Display All Apps

Portfolio (All) BARR Risk Level (All)

Domain (All) Control Id DQ-ITSM-1

Application\_ (All) Status Selection (only on details) (All)

ACE IT ED

Portfolio	Domain	Application	BARR Risk Level	Application Owner	Business Owner	Application Details	Met	Needs Attention	Not Met	Trend
Corporate Portfolio	Technology Management	<div style="border: 1px solid #ccc; padding: 10px;"> <div style="background-color: #ffffcc; border-bottom: 1px solid #ccc; padding-bottom: 5px;"> <span style="border: 1px solid #ccc; padding: 2px;">Colla, David</span> <a href="#">View</a> 0 1 1 <a href="#">View</a> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <span>✓ Keep Only</span> <span>✗ Exclude</span> <span style="border: 1px solid #ccc; padding: 2px;">☰</span> </div> <p><b>Not Met:</b> <span style="border: 1px solid #ccc; padding: 2px;">[REDACTED]</span></p> <p>(counts for controls with multiple artifacts are done at the artifact level)</p> <p>DQ-ITSM-1 Assignment group specified for application in TPM was not found in Active Directory. Assignment group specified for application in TPM has no members.</p> </div>	Low	view	1	0	0	0	0	View
			Low	View	1	0	0	0	0	View
			Low	View	1	0	0	0	0	View
			Low	View	1	0	0	0	0	View
			Low	View	1	0	0	0	0	View
			Low	View	1	0	0	0	0	View
			Low	View	1	0	0	0	0	View
			Low	View	1	0	0	0	0	View

# App TCO – Business View

## ITIL Service Portfolio



Sep FY2020							
Service Type	Service Offering	Application Name	Unit of Measure	Affiliate Service (ASR) ▲	Units	Charge	Effective Price
Delivery Services	BANK DEV AND MAINT - SCL_2/Medium	DEPOSITS - se	SCL by Application	Application Support	1.	\$10,000.00	\$10,000.00
Platform Services	Distributed Database	DEPOSITS - se	DB Instances	Distributed Database	.	.	.
Platform Services	Middleware Talon	DEPOSITS - se	Talon CPU	Middleware	.	.	.
Platform Services	Middleware Classic	DEPOSITS - se	JVM Consumption (MegaHertz)	Middleware	27,781.	\$1,000.00	\$27,781.00
Infrastructure Services	Offline Storage	DEPOSITS - se	TB	Offline Storage	.	.	.
Infrastructure Services	Online Storage	DEPOSITS - se	TB	Online Storage	.	.	.
Infrastructure Services	Virtual Servers	DEPOSITS - se	Effective CPU	Servers	44.	\$2,000.00	\$88,000.00

# App TCO – Business View

## ITIL Service Catalog



Sep FY2020							
Service Type	Service Offering	Application Name	Unit of Measure	Affiliate Service (ASR) ▲	Units	Charge	Effective Price
Delivery Services	BANK DEV AND MAINT - SCL_2/Medium	DEPOSITS - se	SCL by Application	Application Support	1.	\$10,000.00	\$10,000.00
Platform Services	Distributed Database	DEPOSITS -	DB Instances	Distributed Database	.	.	.
Platform Services	Middleware Talon	DEPOSITS -	Talon CPU	Middleware	.	.	.
Platform Services	Middleware Classic	DEPOSITS -	JVM Consumption (MegaHertz)	Middleware	27,781.	\$1,000.00	\$27,781.00
Infrastructure Services	Offline Storage	DEPOSITS -	TB	Offline Storage	.	.	.
Infrastructure Services	Online Storage	DEPOSITS -	TB	Online Storage	.	.	.
Infrastructure Services	Virtual Servers	DEPOSITS -	Effective CPU	Servers	44.	\$2,000.00	\$88,000.00

# App TCO – Business View

## APM Application



Sep FY2020							
Service Type	Service Offering	Application Name	Unit of Measure	Affiliate Service (ASR) ▲	Units	Charge	Effective Price
Delivery Services	BANK DEV AND MAINT - SCL_2/Medium	DEPOSITS - se	SCL by Application	Application Support	1.	\$10,000.00	\$10,000.00
Platform Services	Distributed Database	DEPOSITS - se	DB Instances	Distributed Database	.	.	.
Platform Services	Middleware Talon	DEPOSITS - se	Talon CPU	Middleware	.	.	.
Platform Services	Middleware Classic	DEPOSITS - se	JVM Consumption (MegaHertz)	Middleware	27,781.	\$1,000.00	\$27,781.00
Infrastructure Services	Offline Storage	DEPOSITS - se	TB	Offline Storage	.	.	.
Infrastructure Services	Online Storage	DEPOSITS - se	TB	Online Storage	.	.	.
Infrastructure Services	Virtual Servers	DEPOSITS - se	Effective CPU	Servers	44.	\$2,000.00	\$88,000.00

# App TCO – Business View

## Consumption



Sep FY2020							
Service Type	Service Offering	Application Name	Unit of Measure	Affiliate Service (ASR)	Units	Charge	Effective Price
Delivery Services	BANK DEV AND MAINT - SCL_7/Medium	DEPOSITS -	SCL by Application	Application Support	1.	\$10,000	\$10,000
Platform Services	Distributed Database	DEPOSITS -	DB Instances	Distributed Database	.	.	.
Platform Services	Middleware Talon	DEPOSITS -	Talon CPU	Middleware	.	.	.
Platform Services	Middleware Classic	DEPOSITS -	JVM Consumption (MegaHertz)	Middleware	27,781.	\$1,000	\$27,781
Infrastructure Services	Offline Storage	DEPOSITS -	TB	Offline Storage	.	.	.
Infrastructure Services	Online Storage	DEPOSITS -	TB	Online Storage	.	.	.
Infrastructure Services	Virtual Servers	DEPOSITS -	Effective CPU	Servers	44.	\$2,000	\$88,000

Application support is charged based on architectural complexity

# App TCO – Business View

## The affiliate contract (Reg-W)



Sep FY2020							
Service Type	Service Offering	Application Name	Unit of Measure	Affiliate Service (ASR) ▲	Units	Charge	Effective Price
Delivery Services	BANK DEV AND MAINT - SCL_2/Medium	DEPOSITS - se	SCL by Application	Application Support	1.	\$10,000.00	\$10,000.00
Platform Services	Distributed Database	DEPOSITS -	DB Instances	Distributed Database	.	.	.
Platform Services	Middleware Talon	DEPOSITS -	Talon CPU	Middleware	.	.	.
Platform Services	Middleware Classic	DEPOSITS -	JVM Consumption (MegaHertz)	Middleware	27,781.	\$0.00	\$0.00
Infrastructure Services	Offline Storage	DEPOSITS -	TB	Offline Storage	.	.	.
Infrastructure Services	Online Storage	DEPOSITS -	TB	Online Storage	.	.	.
Infrastructure Services	Virtual Servers	DEPOSITS -	Effective CPU	Servers	44.	\$2,000.00	\$2,000.00

# App TCO – Business View

**Unit \* Price = Cost**



							Sep FY2020		
Service Type	Service Offering	Application Name	Unit of Measure	Affiliate Service (ASR)	Units	Charge	Effective Price		
Delivery Services	BANK DEV AND MAINT - SCL_2/Medium	DEPOSITS - se	SCL by Application	Application Support	1.	\$10,000.00	\$10,000.00		
Platform Services	Distributed Database	DEPOSITS - se	DB Instances	Distributed Database	1.	\$1,000.00	\$1,000.00		
Platform Services	Middleware Talon	DEPOSITS - se	Talon CPU	Middleware	1.	\$1,000.00	\$1,000.00		
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Infrastructure Services	Online Storage	DEPOSITS - se	TB	Online Storage	1.	\$1,000.00	\$1,000.00		
Infrastructure Services	Virtual Servers	DEPOSITS - se	Effective CPU	Servers	44.	\$2,000.00	\$88,000.00		

Look for 27781 on next chart!

# App TCO – IT View

Summary	Servers	Middleware - Classic	Middleware - Talon	Databases	Mainframe/Mainframe Storage	Mainframe Subsystem Groupings
JVM and APP		Application ID		Application Name	Total Megahertz	
bk_s SER	A5' A5'	-00IQ-X 000I	K-	Deposits - se DEPOSITS	8496.281	
bk_c SER	A5' A5'	-00IQ-X 000I	K-	DEPOSITS	2528	
bk_r DEP	A5' A5'	-00IQ-X 000I	K-	DEPOSITS	9329.333	
bk_t CBS	01 - DRY	A5' A5'	-00IQ-X 000I	K-	DEPOSITS	7428.333
Total					27781.948	



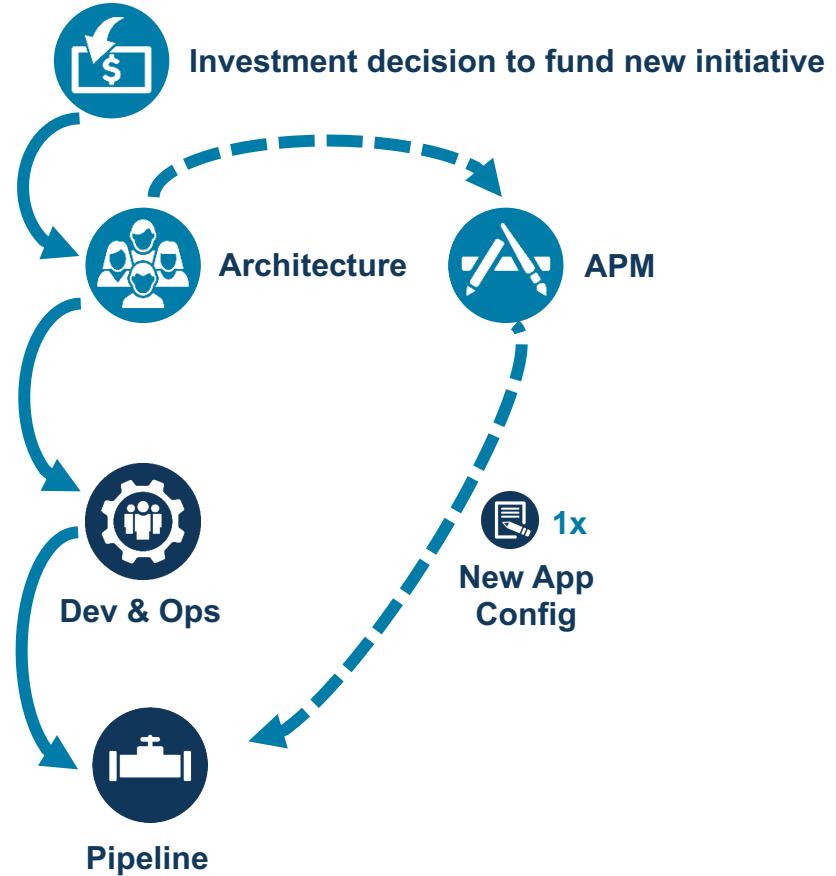
CMDB has all JVMs to App map from 1x registration with CI/CD pipeline

# Method

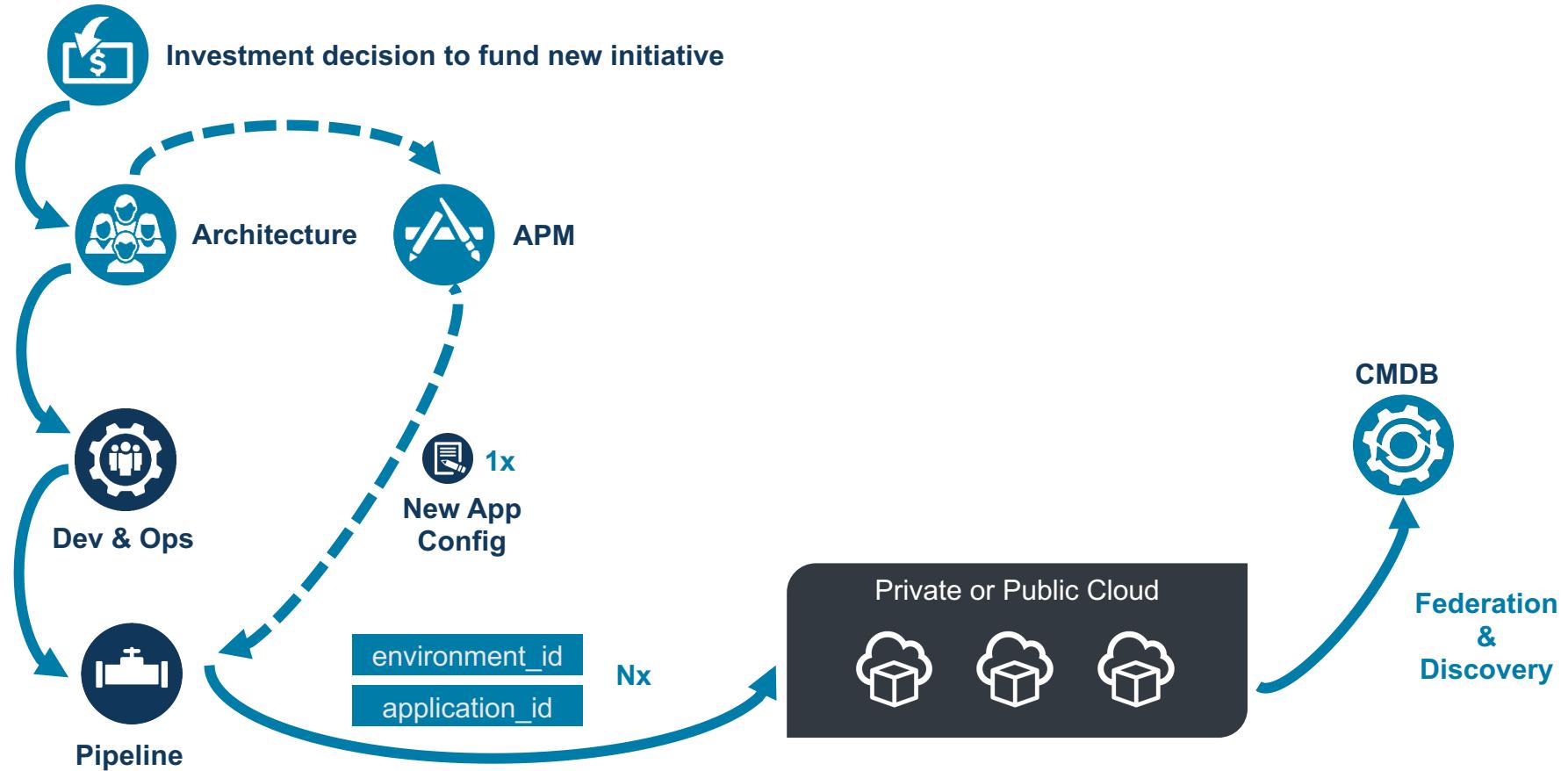


Investment decision to fund new initiative

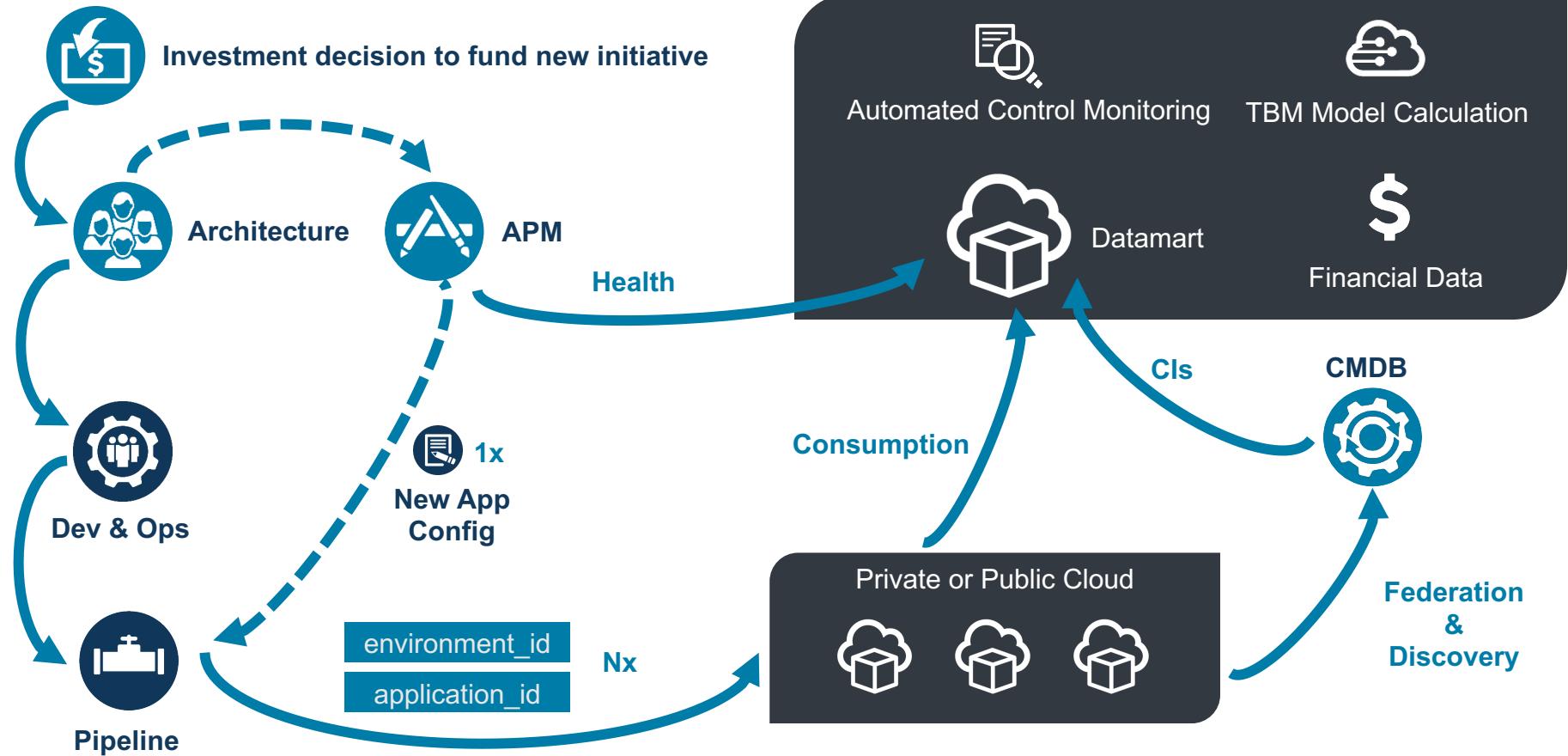
# Method



# Method



# Method



# What's Next



Enhance Public Cloud Data (FinOps)

Expand Controls to Test

Deepen APM and TBM Insights

Automate Data Certification

See you in 2021!

# Thank You

@BMMc. | [linkedin.com/in/brianmccarty](https://www.linkedin.com/in/brianmccarty)