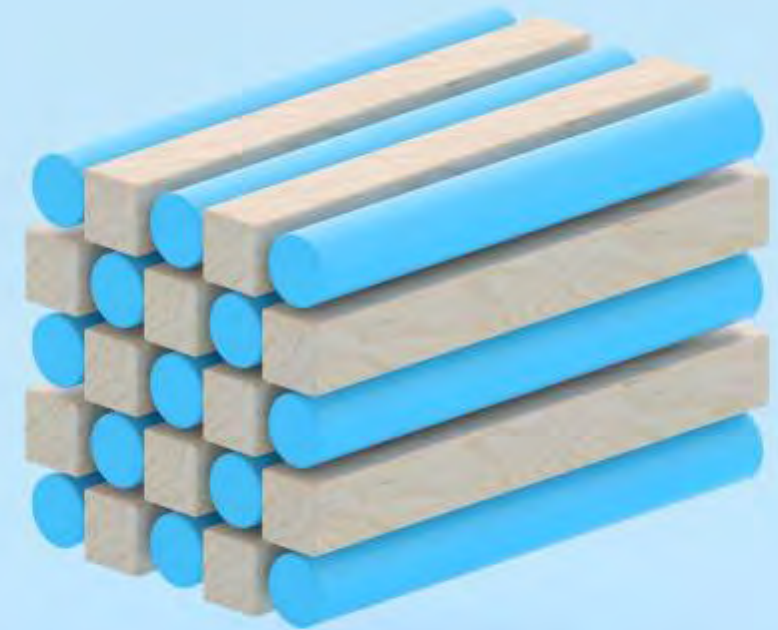


# NetApp on NetApp INFORM

The Value of a Robust Configuration Database  
(CMDB)

Lisa Kurowski  
Sr Business Analyst  
Jun 2022



# Confidentiality Notice

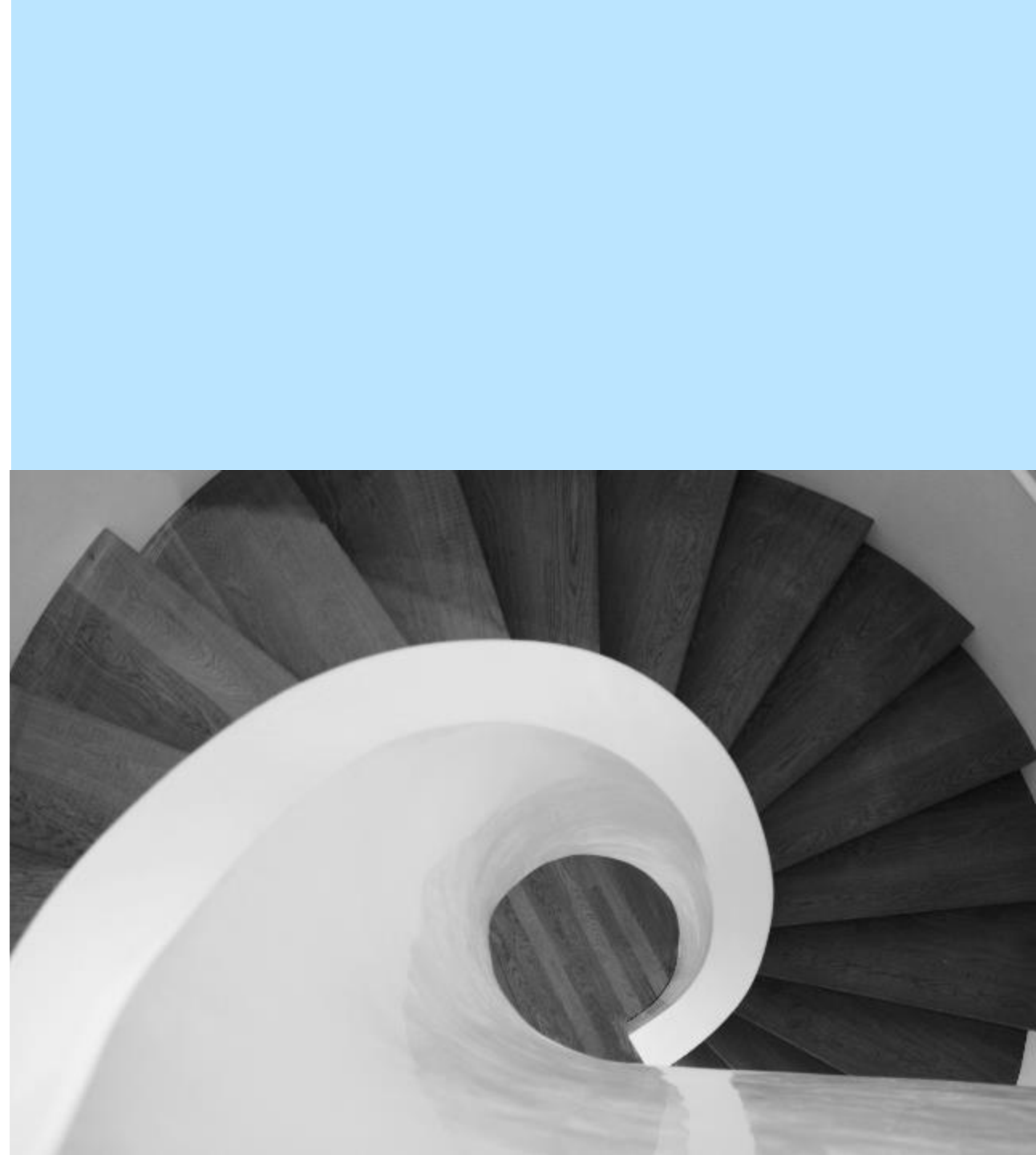
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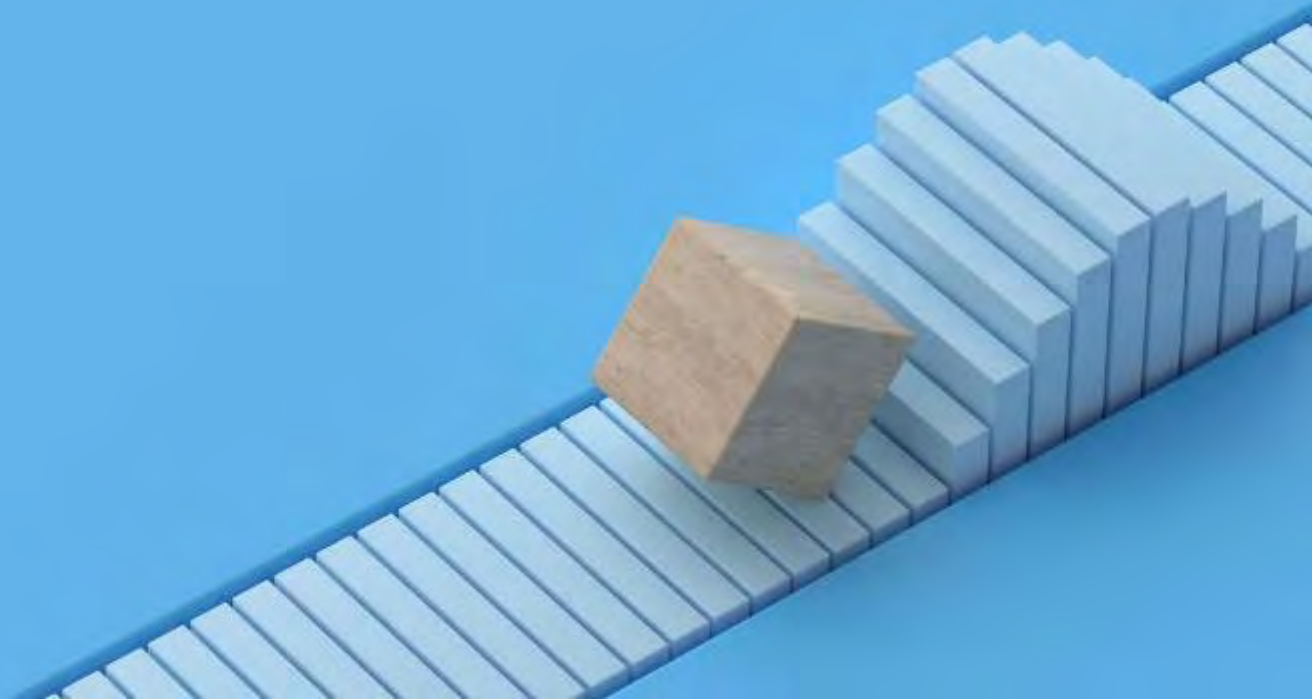
# The Value of a Robust CMDB

## Agenda

- Thoughts on the Journey as a Whole
- Setting the Foundation
- Extending and Integrating
- Auditing and Data Governance
- Perspective on Pitfalls
- Is the Journey Ever Over?



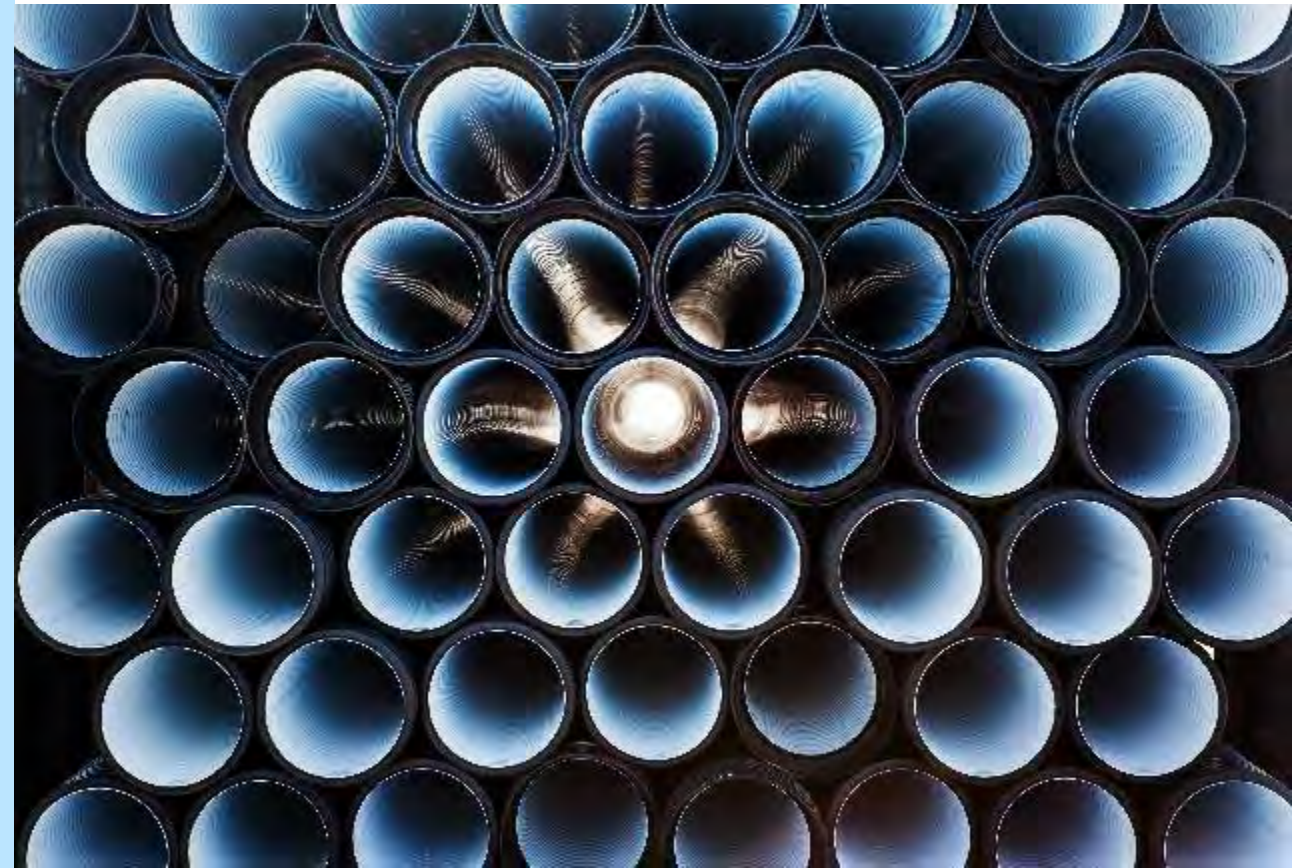
# Thoughts on the Journey



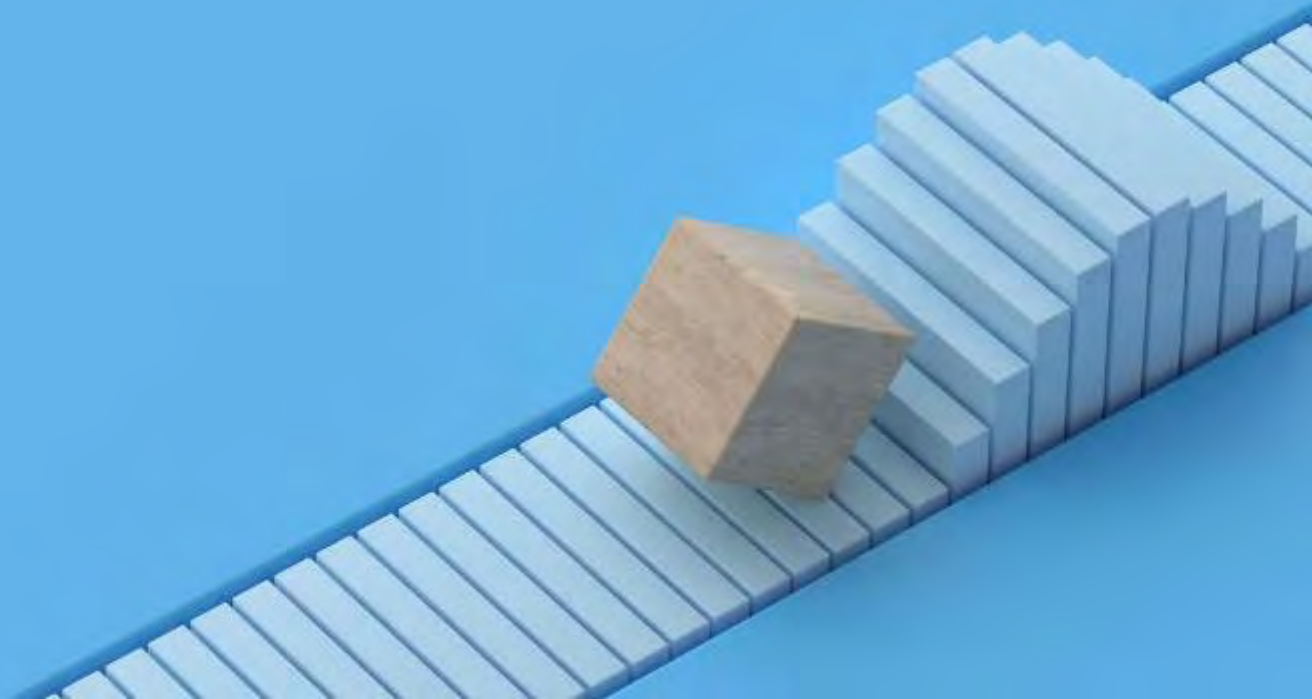
# Building a Robust CMDB

## Thoughts on the Journey

- You won't get there in a day...or even a year
  - Mature iteratively
  - Prioritize
    - What's important, what's nice to have
- Address the whole CI Lifecycle
  - It's easy to add new data...it's hard to keep it current
  - Automate and standardize wherever you can
  - Insist on data ownership
  - Don't forget about retirement
- Concurrent Maturity
  - You can't integrate with something that isn't mature
  - You can't integrate the CMDB if it's not mature

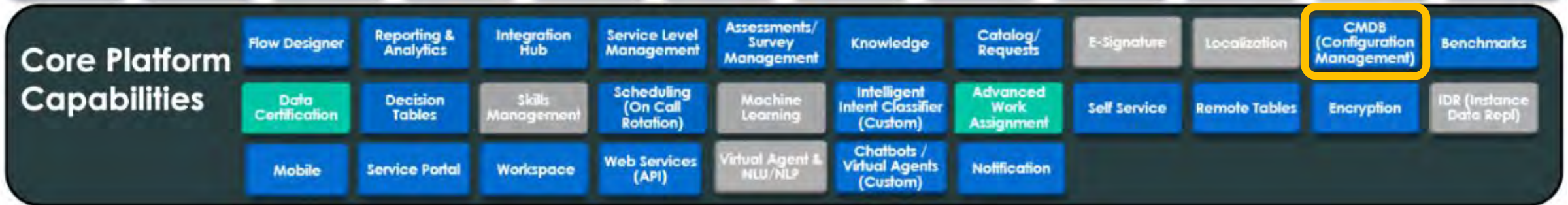


# Our Journey...



# NetApp IT ServiceNow Capabilities Map

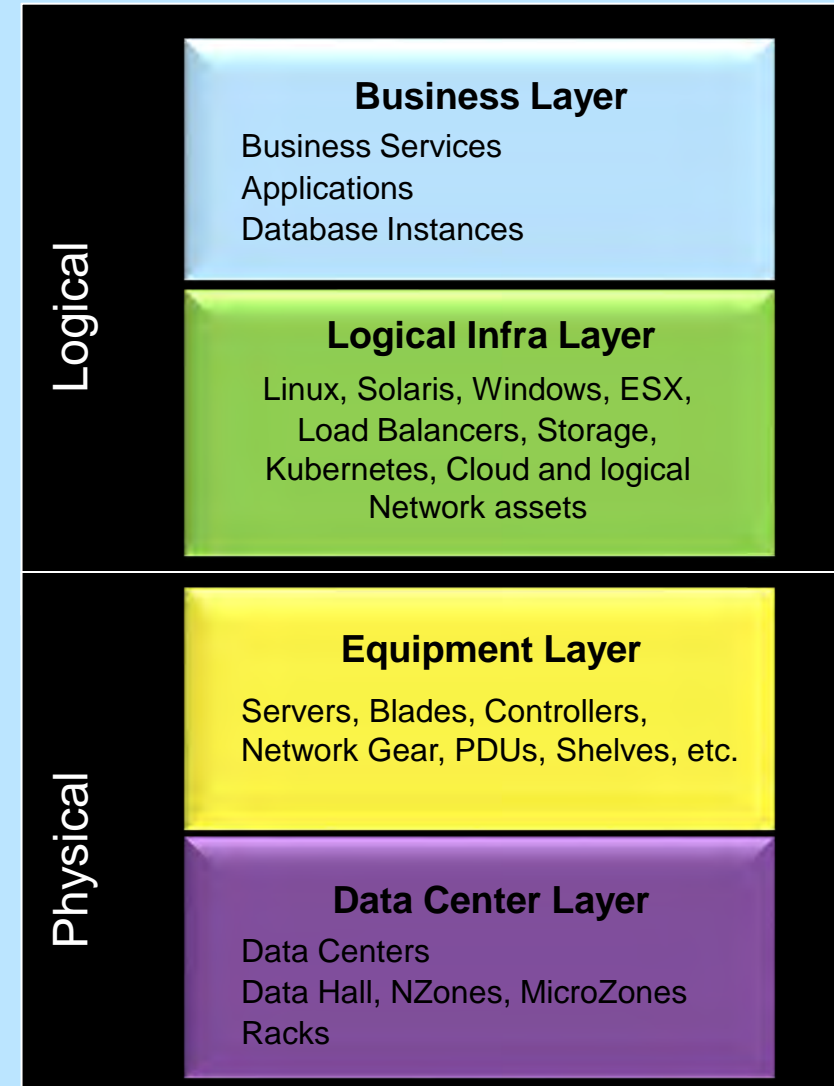
In-Use  
Under Consideration  
Evaluate / Future



# ServiceNow CMDB

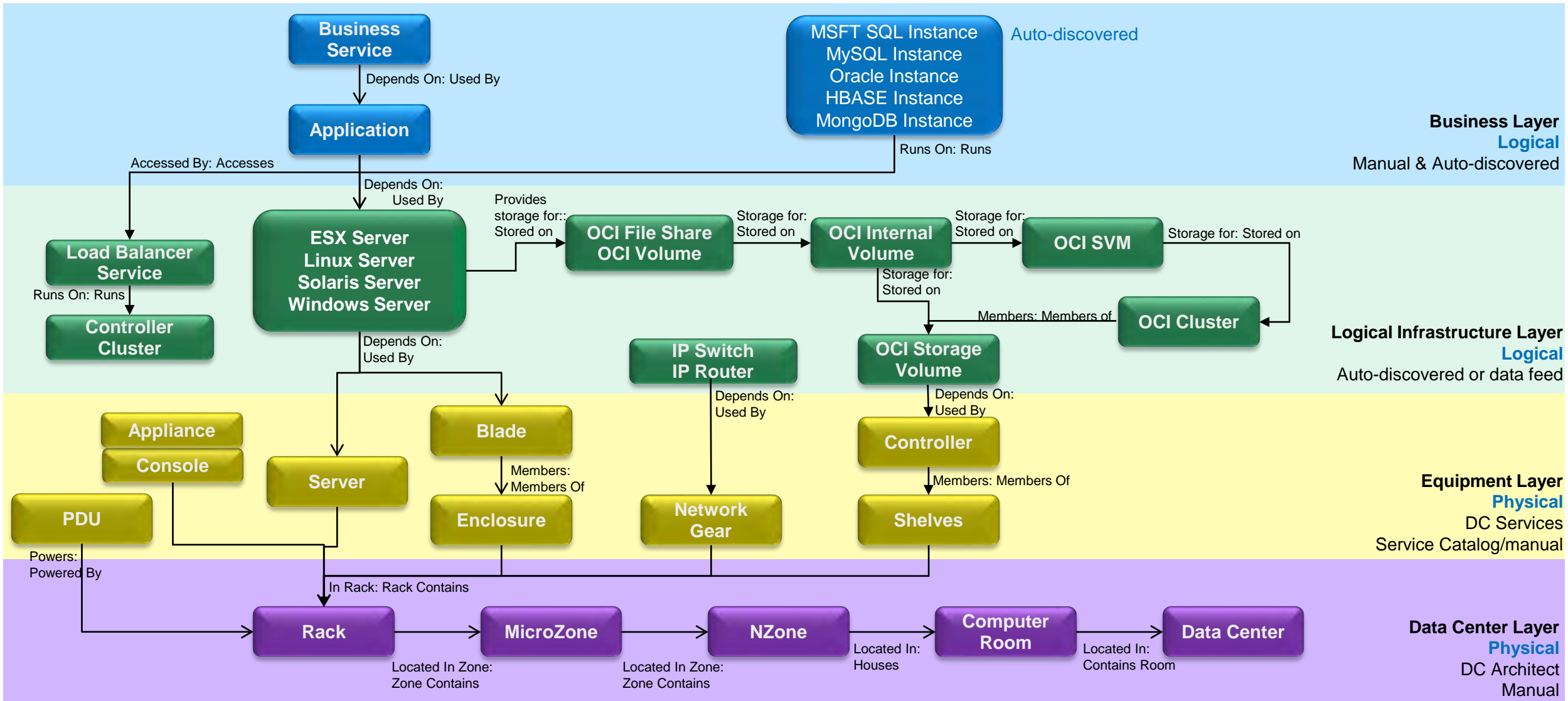
## Scope & Landscape

- The CMDB contains:
  - 270 CI Classes (types of configuration data)
  - 4.7M individual CI's (item entries)
  - 3.7M CI relationships
- Supports both traditional on-prem data center and cloud (public and private) hosting
- Data population and maintenance through:
  - Discovery (probe, pattern, cloud)
  - Self-service automation
  - Manual

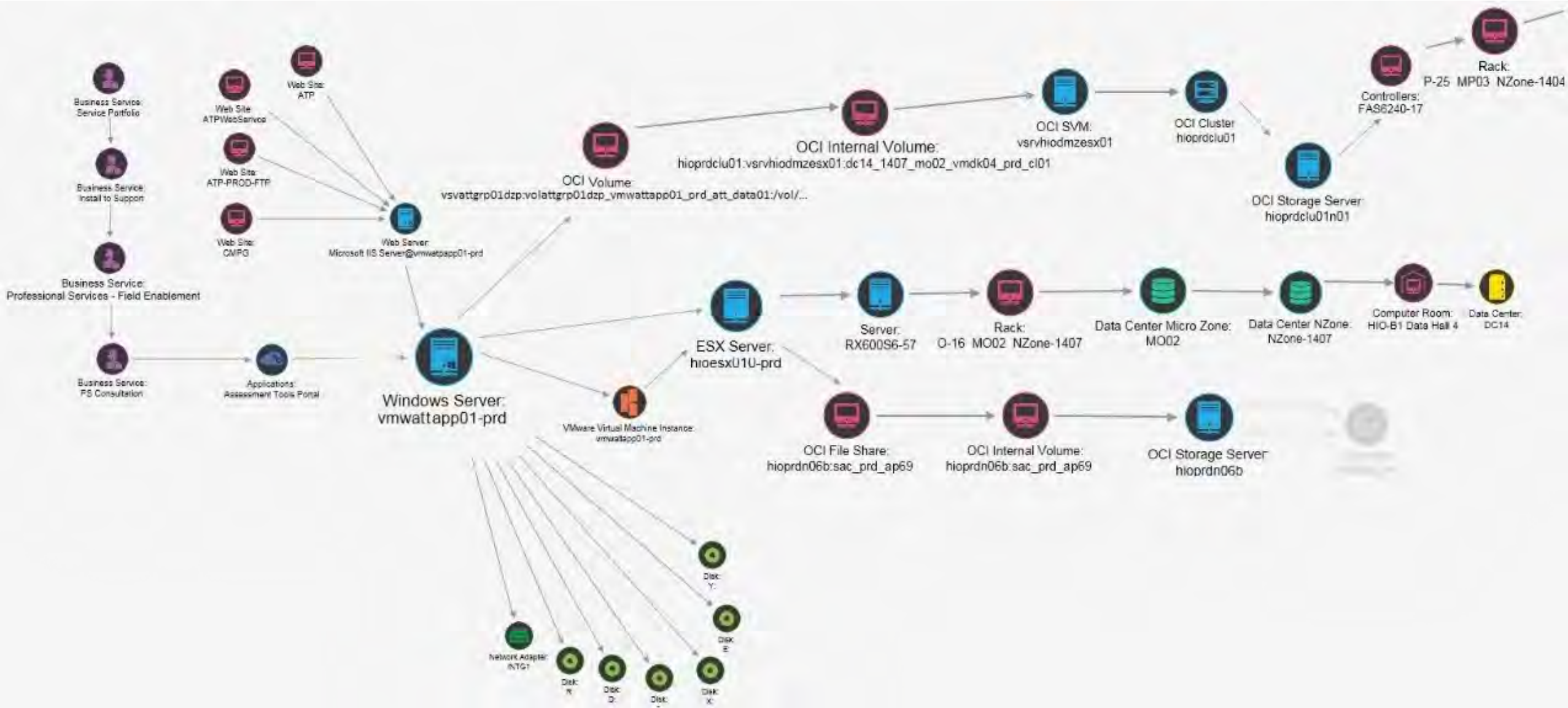




# ServiceNow CMDB: Traditional DC and Private Cloud Hosting



# CMDB Dependency Map



# Value of Naming Standards

## Relationship Management

Applications  
NetApp Support Site (NSS) [Profile view]

Manage Attachments (1): ngss-architecture.jpg [rename] [view]

\* Name: NetApp Support Site (NSS)

Application Alias: NGSS

Application Key: vrKzJ

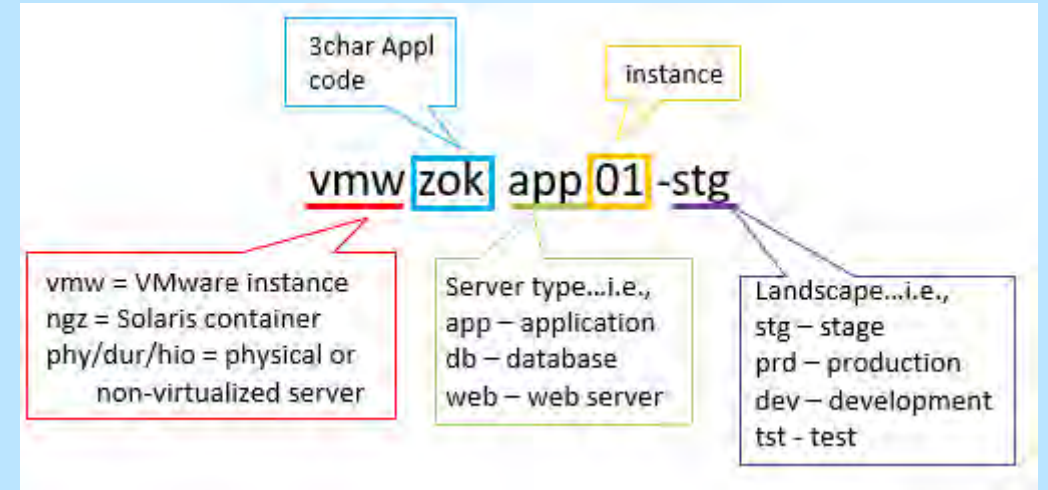
Application Type: Custom Built

\* 3 Letter Application Code: **zok**

SOX In-Scope: No

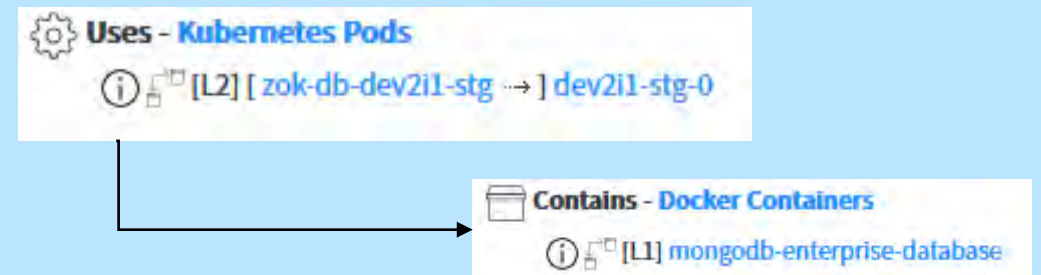
Application Tier: Tier 1

## Server Naming Standard



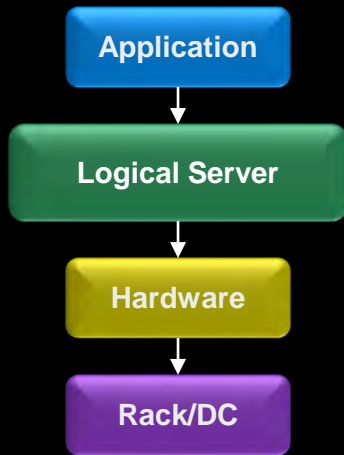
## Kubernetes Namespace Standards

zok-workspace  
zok-stage1-stg  
zok-db-dev21i1-stg



# Build a Solid Foundation

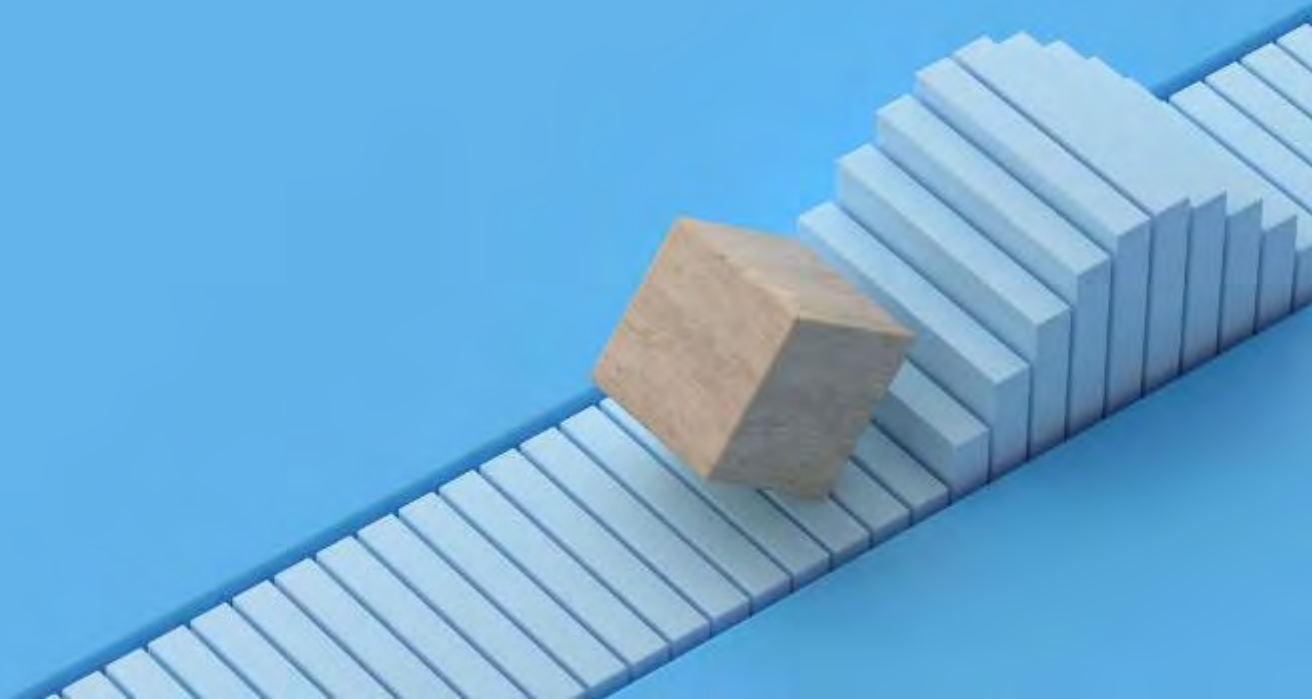
## Foundation



## Building the foundation...

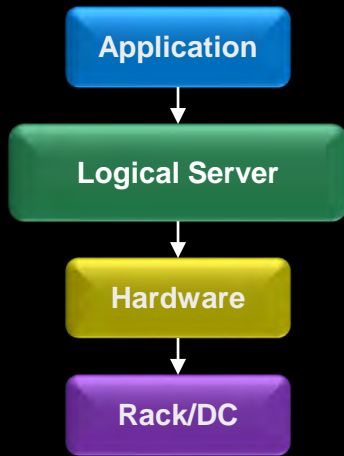
- Standards
- Data ownership with customized Roles and Security
- Hardware provisioning
  - Service Catalog → drives tasks to complete, creates & tracks the CI
- Basic logical server / storage provisioning
  - Service Catalog → automated builds (WFA), creates & tracks the CI
- Discovery management
  - Daily probe scans of all known devices
  - Bi-weekly full scans of all IT subnets, imported from Infoblox
- Application Registration and profile ownership
  - Self-Service Registration via the Enterprise Service Portal
  - Native (for IT) and portal (business) access for data maintenance
  - Ownership transfer controls
  - Quarterly Review process
  - Leaver process, to ensure continuity of ownership when staff leaves

# Extend the Foundation



# Iteratively Mature and Extend Scope and Integrations

## Foundation



- Standards
- Data ownership & Roles
- Hardware provisioning
- Base logical server / storage provisioning
- Discovery mgmt
- Application Registration and profile ownership

## Build upon the foundation...

- Storage: OCI integration (being replaced with Cloud Insights)
- ICE: Data Center Services power & rack visualization
- CI Integration with INC and CHG
- Ansible and Zenoss integrations (monitoring, config mgmt)
- Business Services
- Load Balancer discovery and integration (F5)
- CloudOne DevOps
  - Workspace, Hostspace, AppStack/Pipeline, Dataspace
  - Kubernetes (OpenShift/Rancher)
  - Pipeline API
  - Splunk Integration
  - Bring Your Own DR (BYODR)
- CloudOne Infrastructure as a Service
  - Private and Public Cloud
  - Compute, Storage, Load Balancer (AVI), Object Storage
  - NetApp on Spot
  - Smart Parking
- CloudOne Database as a Service
  - StorageGRID integration

# CloudOne Landing Page





**NetApp** CloudOne

# CloudOne

### My CloudOne Orders

- Request CaaS Microservice: mycaas  
RITM0300777 • Request Microservice • 9d ago
- Initiate CloudOne MANAGE Orders for MyCloud Application STAGE 4  
RITM0300775 • Manage CloudOne DevOps/CaaS Application • 9d ago
- Provision Object Storage  
RITM0298806 • Build Object Storage • 16d ago
- Provision Object Storage  
RITM0299799 • Build Object Storage • 16d ago
- Request OnBoard Application for MyCloud Application STAGE 4  
RITM0299105 • On-Board Application In...

### All Items

- CloudOne DevOps** ↗  

- CloudOne CaaS ↗  
Container as a Service  

- CloudOne DBaaS ↗  
Database as a Service  

- Infrastructure as a Service ↗  
VM-based infrastructure  

- Submit an Idea ↗  
Submit an idea to improve the Clou...

# CloudOne DevOps Manage

## Manage CloudOne DevOps/CaaS Application

Select your Application

Application (Enter Application Name or three-letter Application code)

Requester

[Submit Order](#)

**Total Cost : \$ 0.00**

Workspace

**Hostspaces**

Dataspaces

Pipelines

Monitoring

Firewall Configuration

Cost Management

Splunk Dashboard

Off-Board Application

### Order Hostspace

[View Tshirt Quota Limits](#) [Help](#) [Add Row](#)

Hostspace Name	Landscape	Tshirt Size	Target Cluster	Cost Center	Monthly Cost	Delete
<input type="text"/>	---Select Or ▾	---Select On ▾	<input type="text"/>	010-9237 x ▾	<input type="text"/>	✖

### Existing Hostspaces

[Refresh List](#) [Help](#) [Select Operation](#) ▾

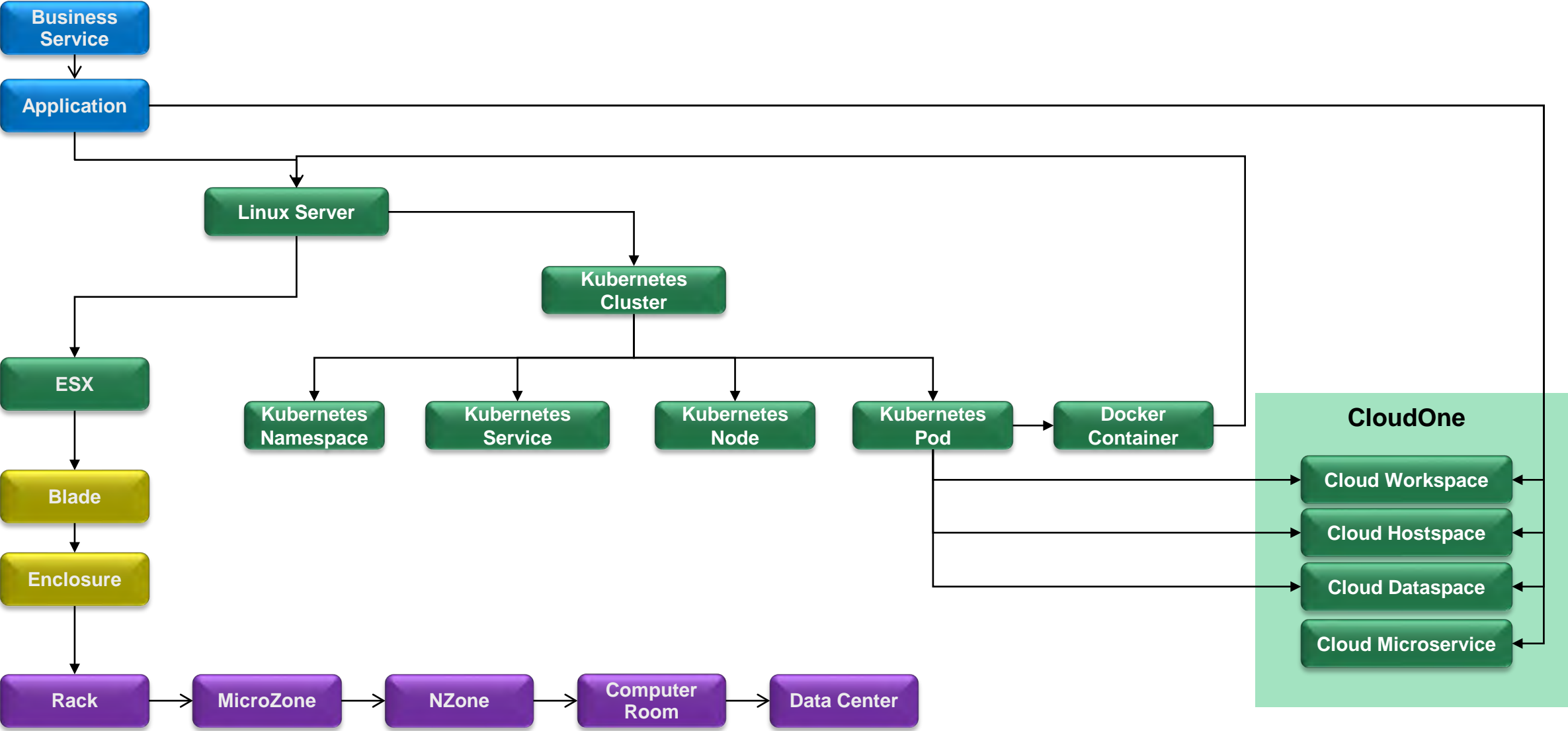
	Hostspace Name	Landscape	DR State	Tshirt Size	Cloud Cluster	Cost Center	Monthly Cost
<input type="radio"/>	asa-prod1-prd	prd	Normal	Small	npc-us-west-dc61-01	010-9237	13.97
<input type="radio"/>	asa-devops1-prd	prd	Normal	Large	npc-us-west-dc61-01	010-9237	140.64
<input type="radio"/>	asa-proddr1-prd	prd-dr	Stand-by	Small	npc-us-west-dc61-01	010-9237	13.97
<input type="radio"/>	asa-stage1-stg	stg		Large	npc-us-west-dc61-01	010-9237	140.64

Security

CMDB linkage



# ServiceNow CMDB: CloudOne DevOps/CaaS (on-prem cluster)



# CloudOne Landing Page





**NetApp** CloudOne

## CloudOne

### My CloudOne Orders

- [Request CaaS Microservice: mycaas](#)  
RITM0300777 • Request Microservice • 9d ago
- [Initiate CloudOne MANAGE Orders for MyCloud Application STAGE 4](#)  
RITM0300775 • Manage CloudOne DevOps/CaaS Application • 9d ago
- [Provision Object Storage](#)  
RITM0298806 • Build Object Storage • 16d ago
- [Provision Object Storage](#)  
RITM0299799 • Build Object Storage • 16d ago
- [Request OnBoard Application for MyCloud Application STAGE 4](#)  
RITM0299105 • On-Board Application In...

### All Items

- [CloudOne DevOps](#) ↗  

- [CloudOne CaaS](#) ↗  
Container as a Service  

- [CloudOne DBaaS](#) ↗  
Database as a Service  

- [Infrastructure as a Service](#) ↗  
VM-based infrastructure  

- [Submit an Idea](#) ↗  
Submit an idea to improve the Clou...

# CloudOne IaaS Portal



View Recent Orders

**My IaaS Orders**

- NetApp Private Cloud: Provision NFS Storage  
RTM0335152 • Cloud Storage • 24m ago
- NetApp Private Cloud :Start  
RTM0335156 • Compute Operations • about an hour ago
- NetApp Private Cloud :Stop  
RTM0335157 • Compute Operations • about an hour ago
- Provision NetApp Private Cloud Compute and Storage  
RTM0335149 • Build: Compute with Storage • 2h ago
- NetApp Private Cloud :Stop  
RTM0322260 • Compute Operations • 4m ago

Count: 135 [View List](#)

**Build**

- Compute With Storage
- Add VM Storage
- Object Storage
- Load Balancer
- Sandbox

Place orders

**Manage**

- Compute With Storage
- Load Balancer
- Sandbox

Manage Assets

**Administrative**

- IaaS How to Guides
- Get an SSH Key
- Setup Advanced Security
- Smart Parking Admin

Admin Functions

**Order History**

- Compute Provision
- Compute Decommission
- Compute LifeCycle
- Compute Admin
- VM Storage Operations
- Object Storage
- Load Balancer
- Load Balancer Admin
- Sandbox(All)
- Smart Parking

View All Orders

# CloudOne IaaS Compute with Storage Order Form

Build: Compute with Storage

[Compute with Storage Order Guide](#)

Security & Ownership

Application Type  
Existing Application

\* Requested For  
Lisa Kurowski

\* Application  
MyCloud ServiceNow Release Test

\* Cost Center (Limited to US Cost Center due to Finance cross-billing limitations)  
010-9237

\* Network Accessibility?  
Internal Only (Corporate network only)

CMDB linkage

Hostname standards

Landscape  
Test

Hostname  
vmwryyapp01-tst

\* Component Code  
app

\* Cloud Region  
NPC West

\* Availability Zone  
npc-us-west-70a

# CloudOne IaaS Compute with Storage Order Form: Spot and Smart Parking

Landscape  
Test

\* Component Code  
app

\* Cloud Region  
AWS East

\* Smart Park Schedule  
No Schedule

No Parking.

\* Smart Parking - ShutDown Delay  
No Delay

\* Smart Parking - Startup Delay  
No Delay

Run on Spot by Netapp  
Click [here](#) for more information on spot

Hostname  
vmwryyapp01-tst

\* Availability Zone  
us-east-1a

Click [here](#) for more information on Smart Parking.

Spot by NetApp

Regional Configuration

- Approvals
- Spot
- Smart Parking

Smart Parking

**Spot Savings:**

• Centos and AlmaLinux	65%
• RedHat Linux	38%
• Windows	45%

**Smart Parking Savings:**

• 12hr Daily	50%
• 15hr Daily	63%
• 12hr Daily + Weekend	64%
• 15hr Daily + Weekend	73%
• Weekend only	36%

# CloudOne IaaS Compute with Storage Order Form

\* OS Type  
Linux

\* OS Profile  
RedHat Enterprise Linux 8

\* Compute Profile  
small (2 CPU, 4096MB memory, 100GB Local storage)

Estimated Monthly Compute cost  
\$54

\* SSH Public Key(OpenSSH RSA format)

Storage Type  
iSCSI

Don't have a Key? [Click Here](#)  
[View Sample Key](#)

CMDB linkage

Volume	MountPoint	Data Size(GB)	FSType	Cost
+ x				
volryytst_app01_01	/apps/appdata01_01	4	xfs	0.20
volryytst_app01_02	/apps/appdata01_02	4	xfs	0.20
volryytst_app01_03	/apps/appdata01_03	4	xfs	0.20
volryytst_app01_04	/apps/appdata01_04	4	xfs	0.20

# Object Storage via NetApp StorageGRID Buckets

## Build Object Storage

Build "Object Storage" provisions S3 compatible storage via a NetApp StorageGRID "Bucket".

Store and retrieve your application data using the same Web APIs as the public cloud's most popular storage service. It's simple to use and extremely cost-effective, highly scalable, and ideal for all your unstructured data needs.

Currently each application is limited to **ONE** bucket and access credentials are shared across the support team.

For more information on StorageGRID buckets and their use, see [KB0006659](#)

### NetApp Object Storage asa-bucket-general-01

Name	asa-bucket-general-01	Status	Active
Class	NetApp Object Storage	Decommissioned Date	
Cloud Provider	NetApp	Ordered By	Lisa Kurowski
GRID ID	03 PRD 0M7	Cost center	010-9237
Owner	r0cwan03s301-cloud1-objects@w	Creation Date	2020-08-28 10:26:39.804000+00:00
Tenant ID	01463502246685500987	Group Owner	asa-group-owner
Quota Limit	100	Group Read	asa-group-read
Service Name	s3	User ReadWrite	asa-user-rr01
Admin URL	https://10.222.33.120	User Read Only	asa-user-ro01
Gateway Endpoint	mg-hio-prd-clnt.dnz.netapp.com:443,mg-ntp-prd-clnt.dnz.netapp.com:443		

\* Application  
INSIGHT Demo 2020

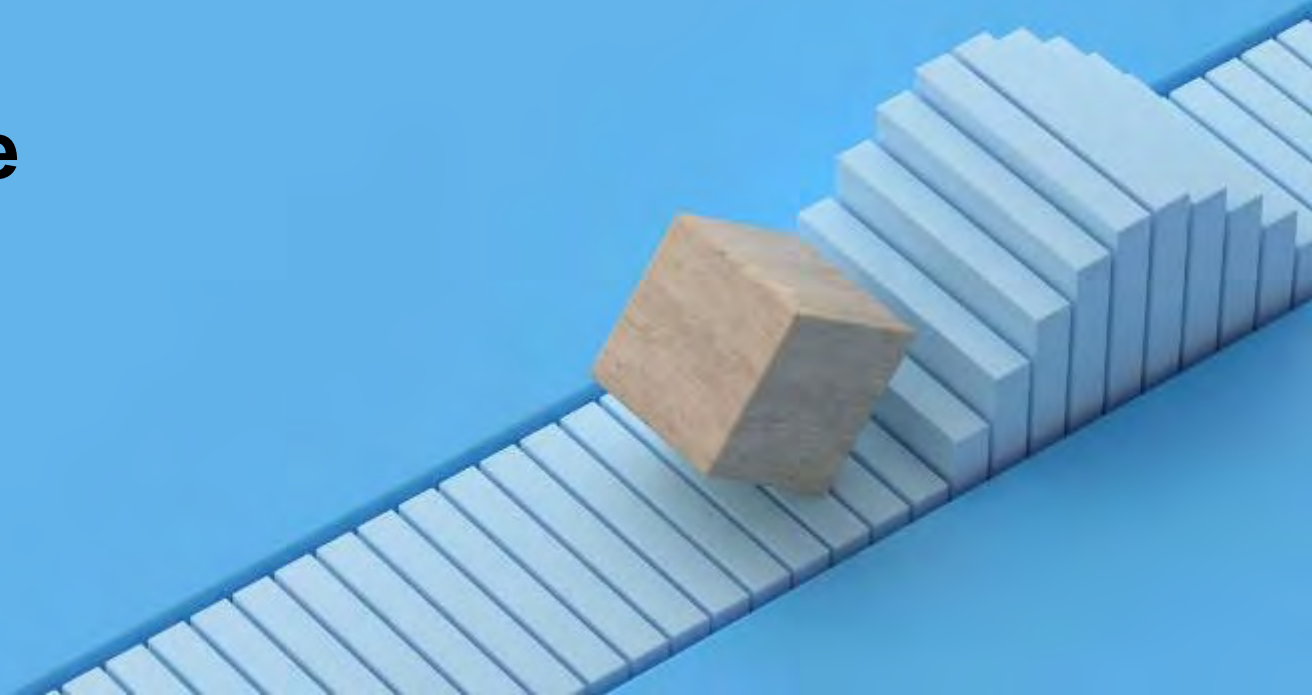
\* Requested For  
Lisa Kurowski

\* Cost Center (Limited to US Cost Center due to Finance cross-billing limitations)  
010-9237

\* 8-15 alphanumeric char Password (for opening secure emails with access keys)  
..... SHOW

CMDB linkage

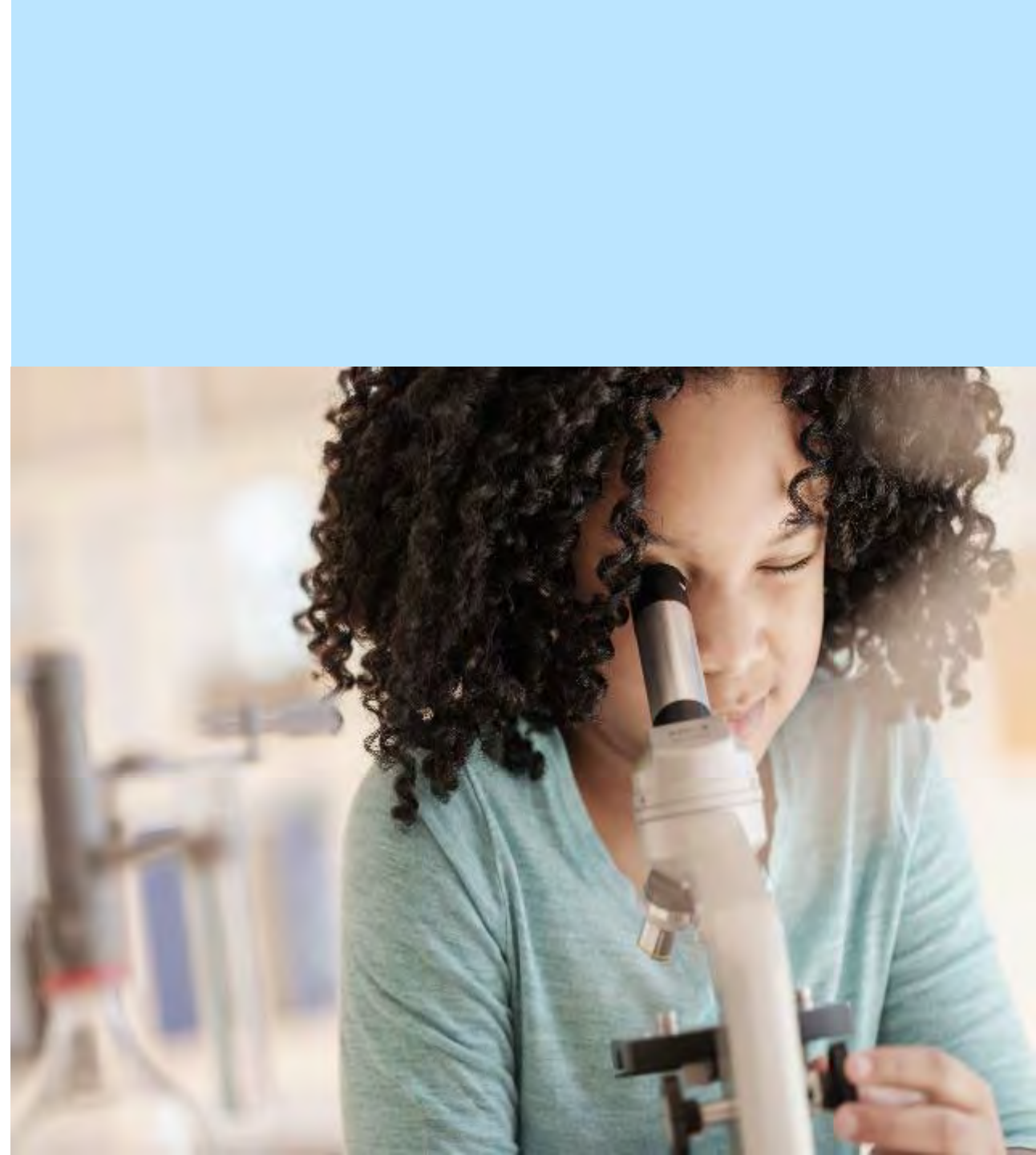
# Auditing and Data Governance





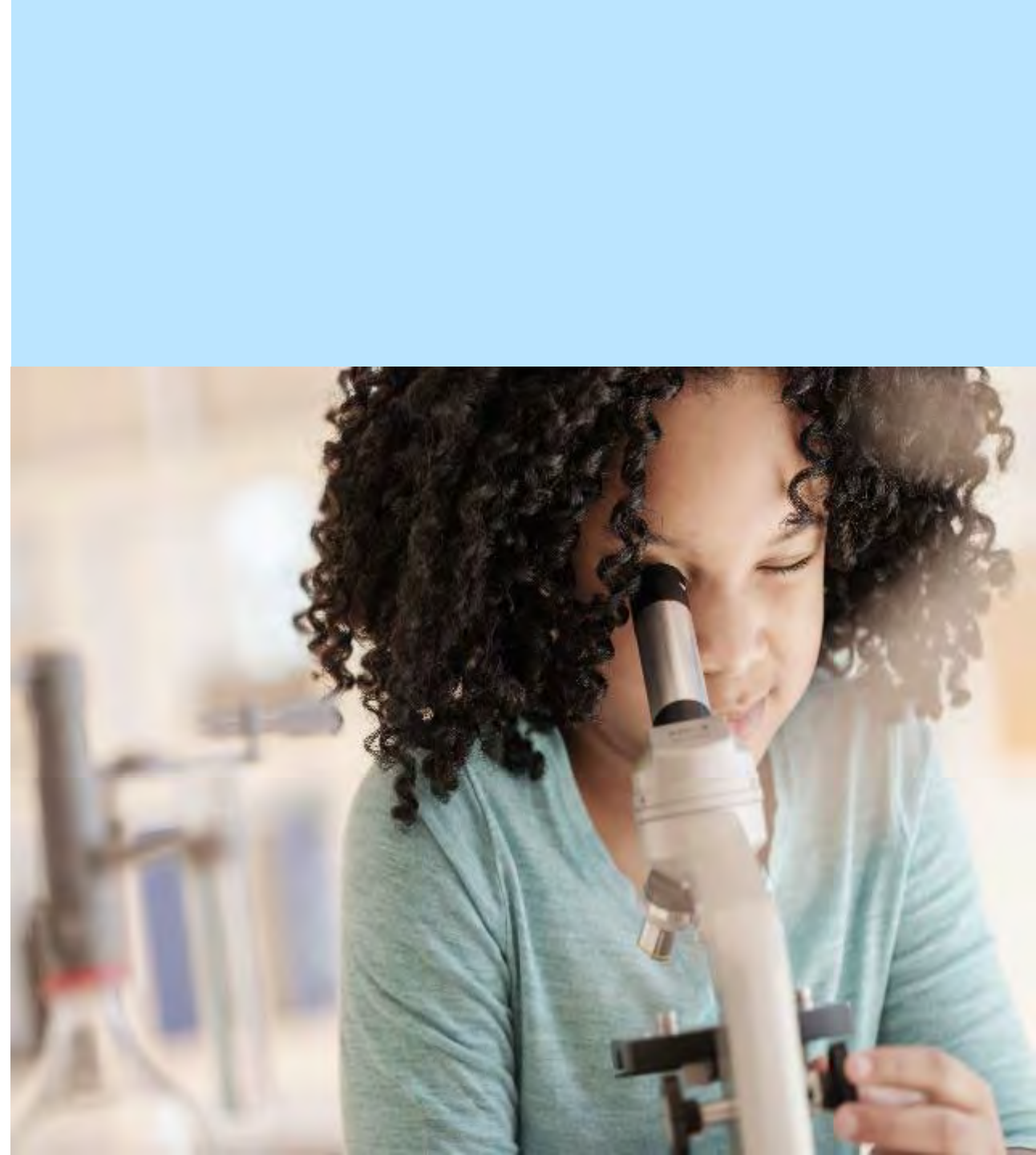
# Data Quality Baked In

- Application Ownership
  - Change Control
  - Leaver Process
- Decommissioning Controls:
  - Application
  - Logical Server, Automation
  - Logical Server, Mark as Decommissioned
  - Physical Equipment
- Automation
  - Logical Server Naming Convention
  - Load Balancer Naming

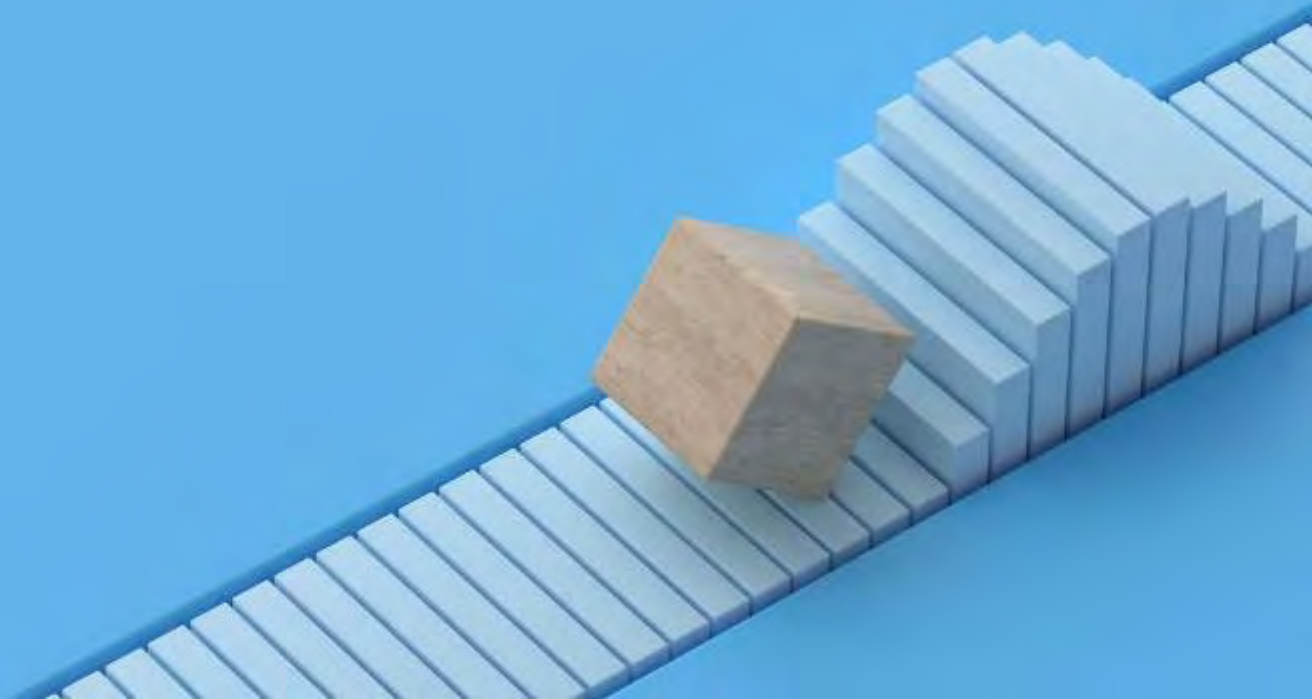


# Auditing and Data Governance

- Weekly Metrics
  - Overdue On Order
  - Completeness of Application Relationships
  - % Server Base Discovering
  - Last Status Change - Inactive
- Real-time Dashboard
  - Discovering Decommissioned & Inactive Servers
  - SOX Server Discovery
  - Security
- Bi-weekly Full Scan Reports
- Quarterly Relationship Audit
- Quarterly Application Review
  - Management OverDue Report
- OOB Health Dashboard

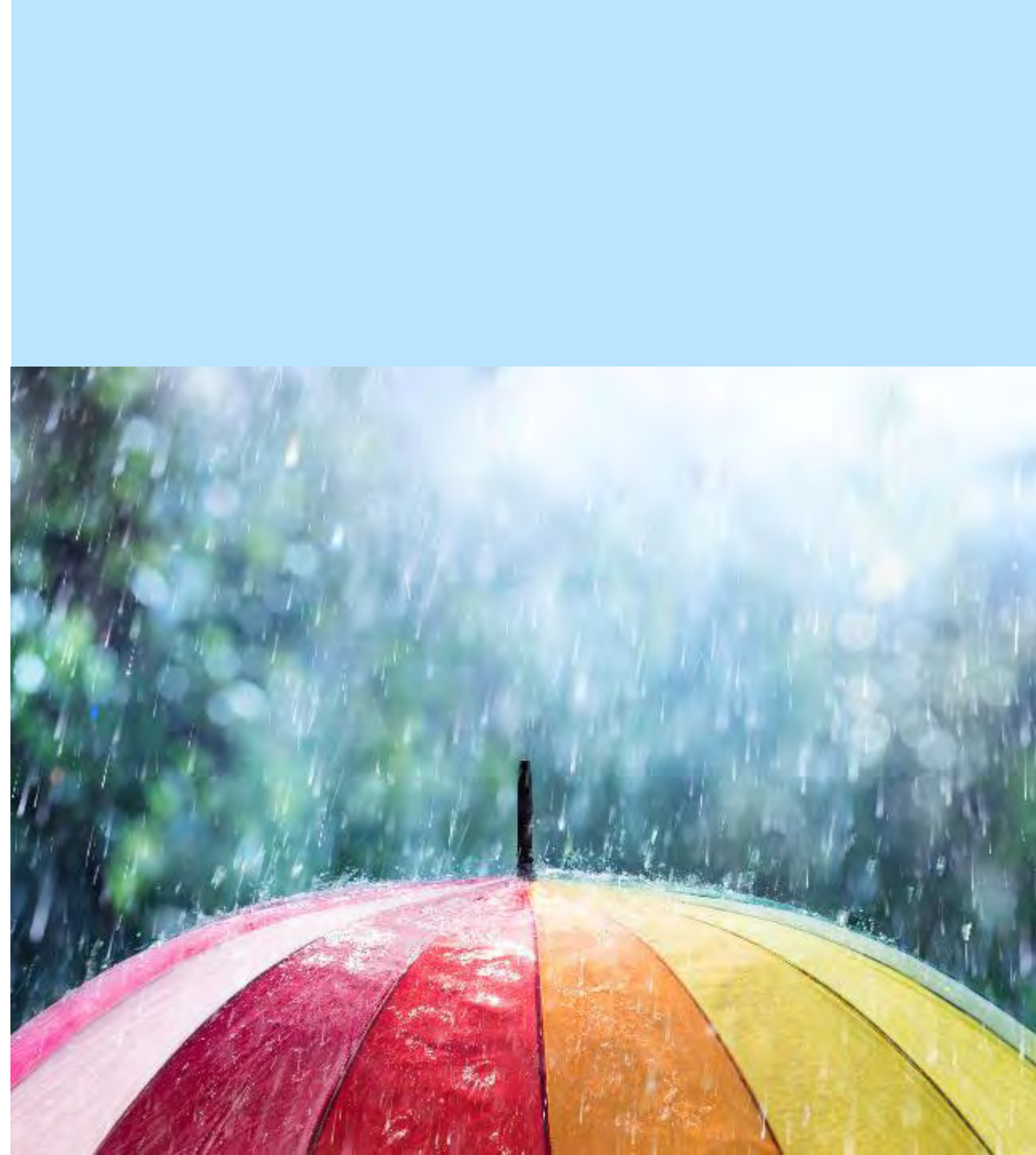


# Pitfalls and Challenges

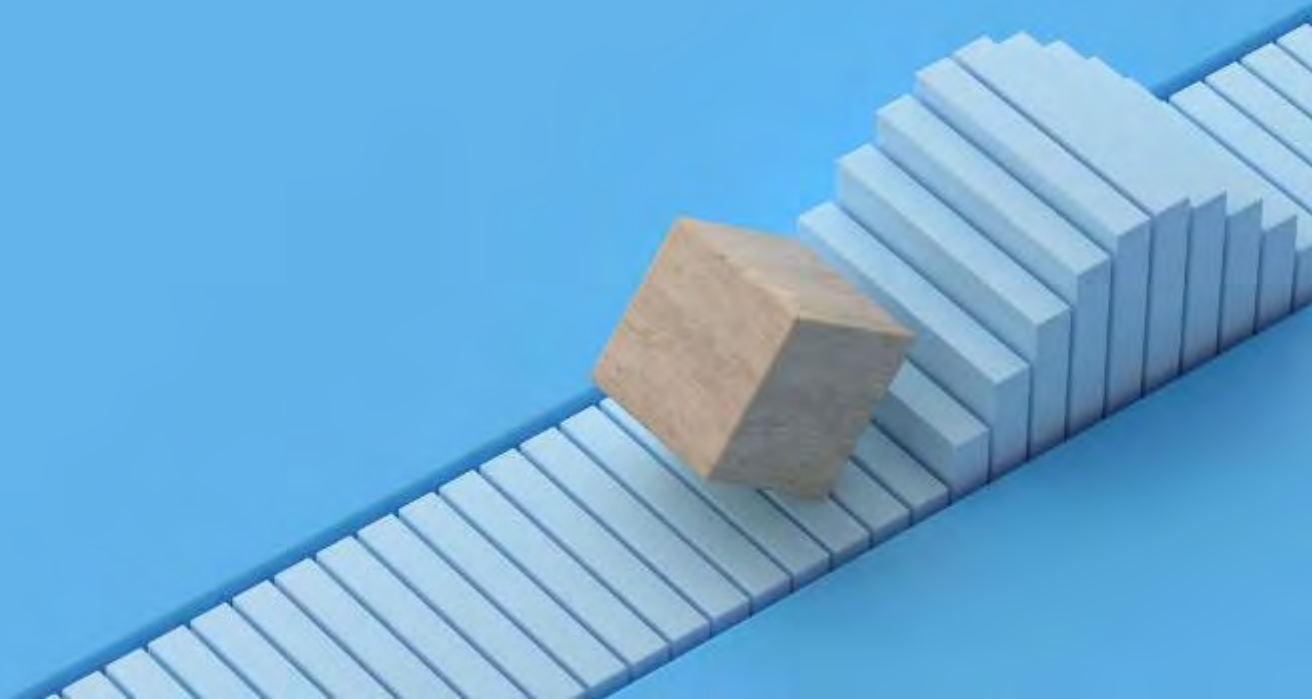


# Pitfalls and Challenges

- Don't Forget End-of-Life Automation
- Openness of Out-of-the-Box Security
- Securely using CMDB data in the Portal
- Discovery Monitoring
  - Appliance Discovery
- Probe & Pattern Upgrade and Validation
- Reporting
- Adoption of the SN CSDM
- Enforcing Standard and Integrated Automation Usage

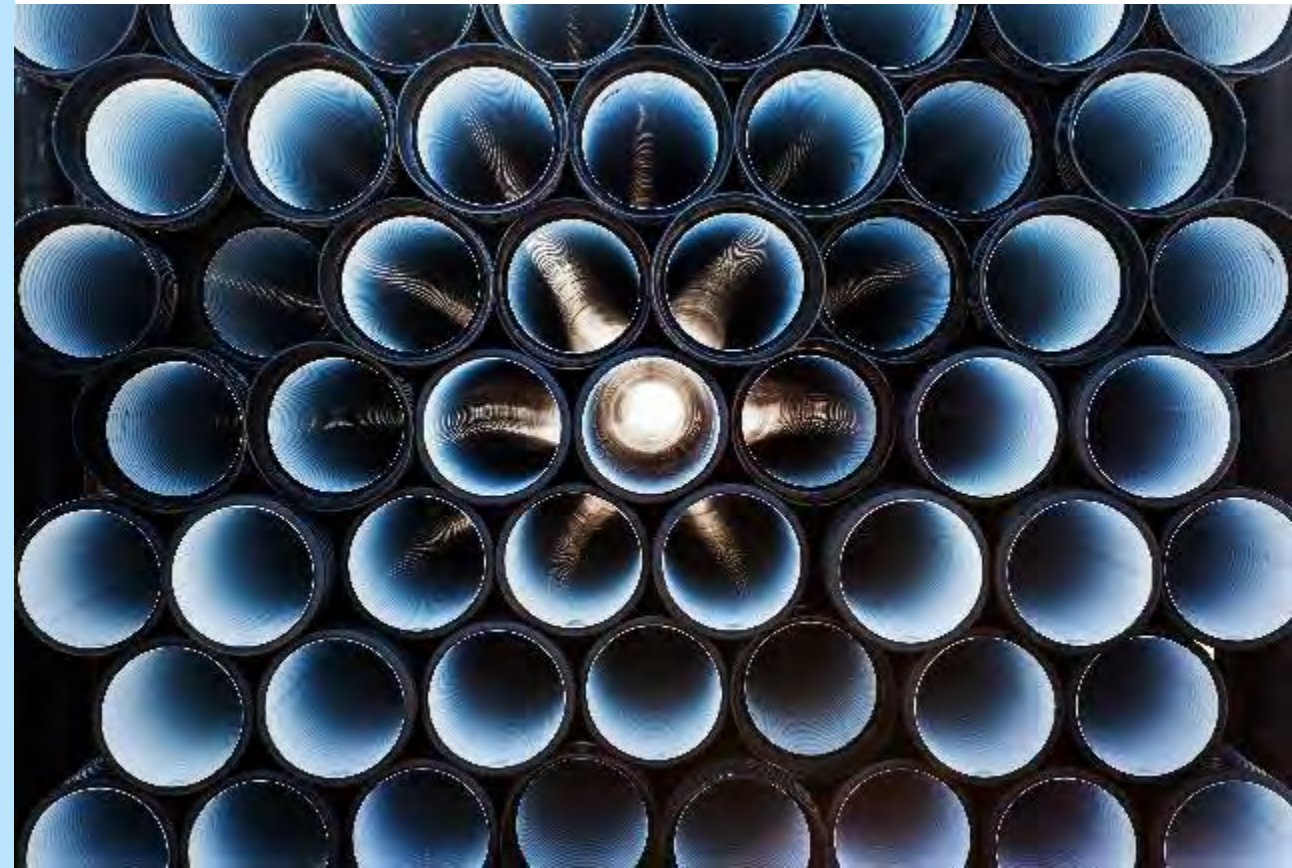


# Is the Journey ever Over?

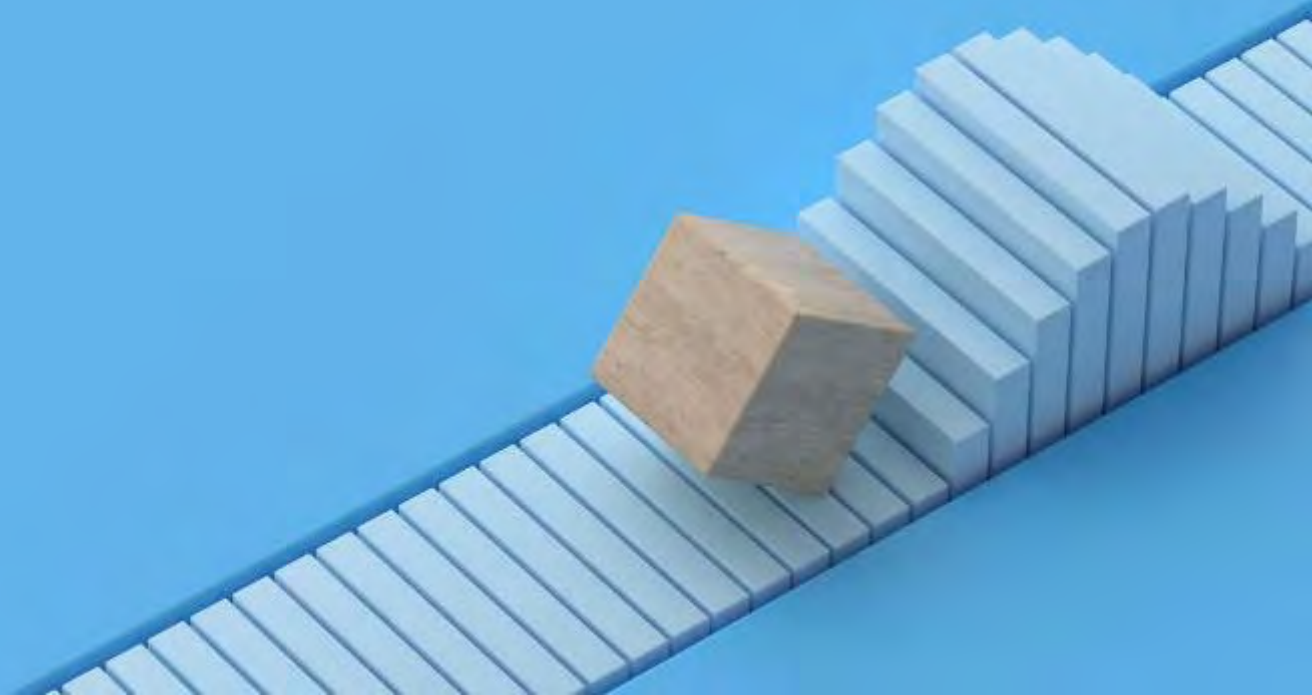


# Is the Journey Ever Over?

- NO
  - Technologies evolve with increasing speed
    - New technologies to discover
    - New asset types to represent
  - Need for cost reductions and improved process efficiencies:
    - New integration and automation opportunities

The NetApp logo is displayed in a large, semi-transparent font. It consists of a square icon with a stylized 'N' inside, followed by the word 'NetApp' in a bold, sans-serif typeface.

# Q & A



**Thank You**

