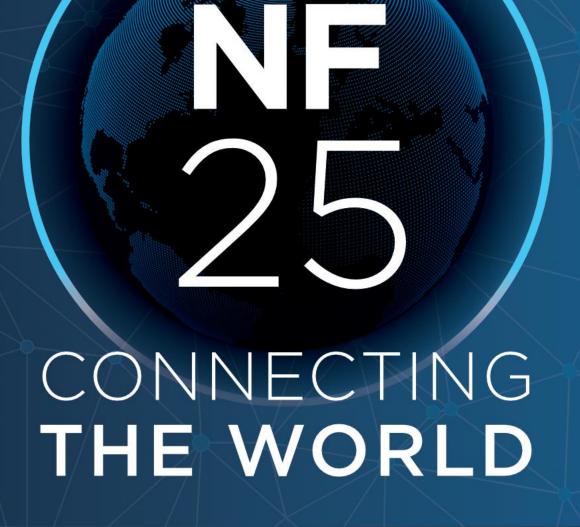
CONNECTING THE WORLD



Containerised Niagara Explained

Jacqueline Walpole / Tridium Paul Fahy / Tridium Peter Shepherd / Forest Rock

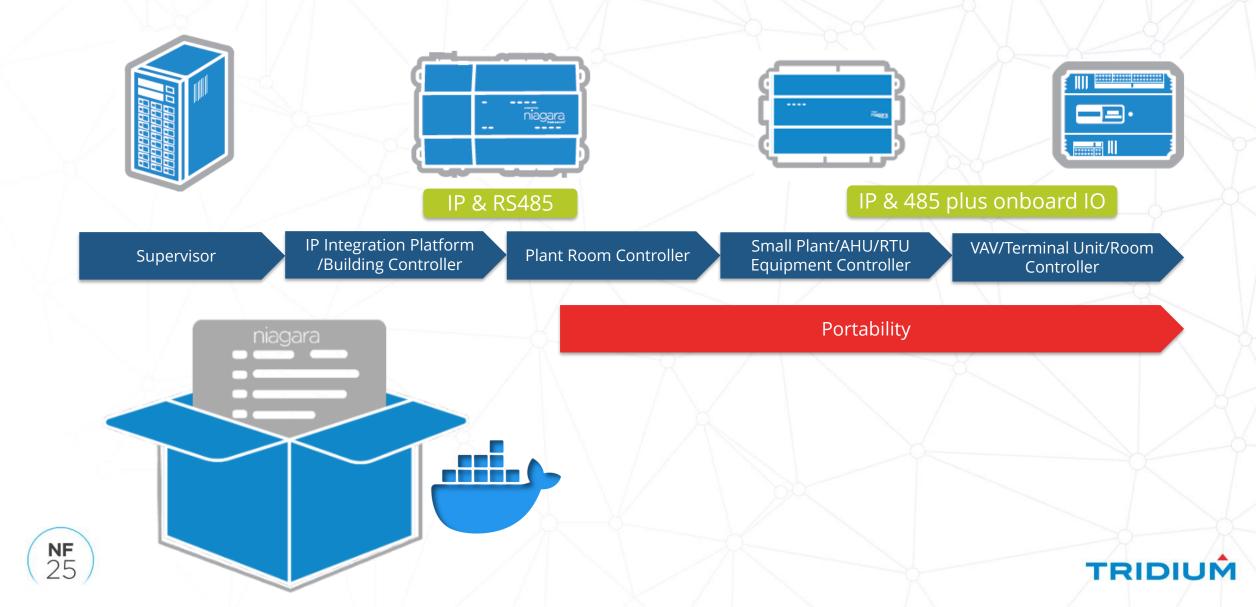


What is a Containerized Niagara?

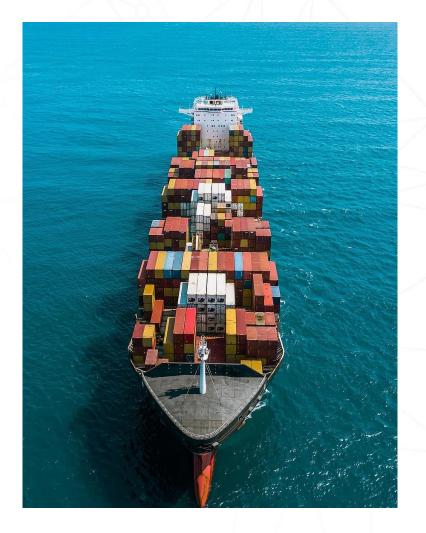




Niagara Deployment Platforms



What is a container?



 Containers are technologies that allow the packaging and isolation of applications with their entire runtime environment and all of the files necessary to run.

 This makes it easy to move the contained application between environments (dev, test, production, etc.) while retaining full functionality.*



*Source redhat.com



Where can Containerized Niagara be utilised?

EMBEDDED HARDWARE

- For OEMs managing connected devices such as routers and hubs using a container management system, containers can facilitate easy remote deployment and updating of Niagara
- Portability alternative embedded deployment whereby a Niagara development partner deploys Niagara containers on its own proprietary or a third-party commercial device



Connected Container Orchestration Platform

CONTAINERIZED PORTABLE NIAGARA (NCC-CPN)



Where can Containerized Niagara be utilised?

CLOUD

• Supervisor deployment in a cloud service

ON PREMISE

• Supervisor deployment on a server device housed locally

CONTAINERIZED SUPERVISOR (NCC-SUP)









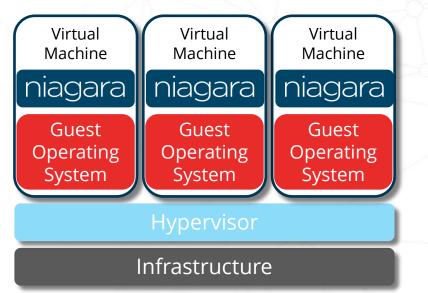
Benefits of a Container?





Benefits of containers over VMs?

Virtual Machines



Formerly Popular for Virtualization

Containers



Containerization Engine

Guest Operating System

Infrastructure

Now Popular for Virtualization

Lightweight:

- Shares the host's OS system kernel
- Does not require an OS per application
- Driving higher server efficiencies
- Reduces server and licensing costs

Secure:

Applications are safer in containers and provides the strongest default isolation capabilities in the industry

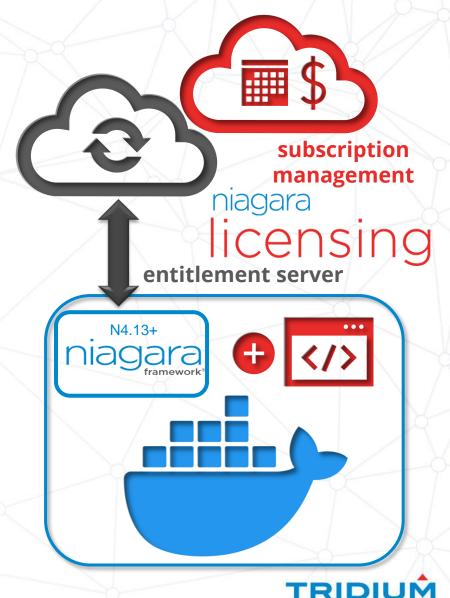
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Containers are less resource intensive and more portable than Virtual Machines. Can ease development, deployment and upgrades.



Containerised Niagara

- Niagara Framework supplied in a Docker[™] container
- Support for AMD_x86 and Arm64 architecture
- Partner OEMs can add their own applications as required prior to the deployment of their container
- As the container is commissioned, it will contact the Tridium Entitlement Server to authorize install, deploy license, and stay activated
- Containerized Niagara was launched with N4.13 as a subscription only service





SaaS Subscriptions:

NF 25

- OPex rather than CAPex
- Less outlay Less commitment

Niagara

SMA included in subscription

More purchasing flexibility!

niagara licensing

101 111 0

• NOTE: A subscription Niagara instance will perform a system exit—that is, it will stop working—if subscription renewal is not paid.

Organization * Production * Products * Licenses * Orders * Software *

Niagara Licensing

Marketplace

Projects

Software Stock

Engineering Licenses

Subscription Licenses

Subscription Console

Software

Slice

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49 Niagara Cloud Suite Subscriptions Expired SMA	80 Niagara Subscription Licenses Active	23 Niagara Subscription Licenses New Enrollments processed within 90 days	24 Niagara Subscription Licenses Pending Renewal within 90 days
244 Niagara Subscription Licenses Last check in > 3 days	189 Niagara Subscription Licenses Expired	240 Niagara Subscription Licenses Pending Activation	240 Niagara Subscription Licenses Disconnected > 14 days
242 Subscription SW Options Active	51 Subscription SW Options Pending Renewal within 90 days	13 Subscription SW Options SMA Pending Renewal within 90 days	1108 Subscription SW Options Expired

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niagara

licensing

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Home > Subscription Console

Niagara Subscription Licenses - Active

Niagara Subscription Licenses that are Active and Regularly Checking-In

III COLUMNS FILTERS EXPORT C REFRESH

Host Code	Product	Expires	Last Check-In	Project	Subscriber Y	Project Owner
Nre-1C2D-A092-2B8D-4291-9656-7679-2EF6-3968	NTEST-NCC-SUP-100	14 Aug 2025	Wed Aug 14 2024 16:28:44 GMT+0100	TridiumInternalTestSUP	Tridium, Inc.	Tridium, Inc.
Nre-5EA5-535A-FE16-4E48-8849-31D0-31CA-877B	NTEST-NCC-SUP-100	23 May 2025	Thu Aug 03 2023 11:04:01 GMT+0100	TridiumInternalTestSUP	Tridium, Inc.	Tridium, Inc.
Nre-2F3C-2BCE-D4DC-47F9-ADE4-B640-CF74-7A45	NTEST-NCC-SUP-100	08 Aug 2025	Mon Mar 31 2025 05:53:53 GMT+0100	TRIDIUM UK TRAINING DEPARTMENT	Tridium, Inc.	Tridium, Inc.
Nre-2BE9-15B7-0A15-42A2-BAEC-68F2-281C-B18B	NTEST-J-CPN-0025	23 May 2025	Sun Mar 30 2025 22:51:53 GMT+0100	TridiumInternalTestCPN	Tridium, Inc.	Tridium, Inc.
Nre-8726-E09F-4F5A-4589-BD55-C874-872B-2E17	NTEST-J-CPN-0025	23 May 2025	No Check-In Detected	TridiumInternalTestCPN	Tridium, Inc.	Tridium, Inc.
Nre-E0FF-B67E-A806-4C88-9297-5CC1-6A35-9120	NTEST-NCC-SUP-100	05 Oct 2025	Mon Mar 31 2025 06:53:06 GMT+0100	TRIDIUM UK TRAINING DEPARTMENT	Tridium, Inc.	Tridium, Inc.
Nre-4CC8-5369-AF37-4968-9E66-C8 B-061D	NTEST-NCC-SUP-100	05 Oct 2025	Mon Mar 31 2025 00:05:39 GMT+0100	TRIDIUM UK TRAINING DEPARTMENT	Tridium, Inc.	Tridium, Inc.

Click through to view each license, Subscriber etc.



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Containerised Niagara

Paul Fahy - Tridium





What about containerized Niagara?

Supported Architectures

AMD

x86

- ARM favors simplicity and fast execution of single instructions.
- Uses less power and produces less heat.
- Ideal for embedded devices.



- The x86 processors allow you to perform several activities at the same time from a single instruction.
- Used predominately in servers and PCs.





What about containerized Niagara?

- The File Domain Authentication (FDA) version is similar to how JACE is managed today
- Connect with Workbench client using default platform credentials
- Use the wizard to change the default platform credentials and passphrase similar to how a JACE is provisioned out of the box.
- Workbench client can be used to manage the passphrase and platform credentials using the platform administration view





- The Native Domain Authentication (NDA) based version requires configuring the passphrase and platform credentials using either environment variables passed into the container runtime or using platform_password and system_passphrase files which are located under a volume which the container has access to
- This uses tools such as Kubernetes Secrets to manage all credentials

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 Ideal for large scale deployments of Niagara



Worth noting

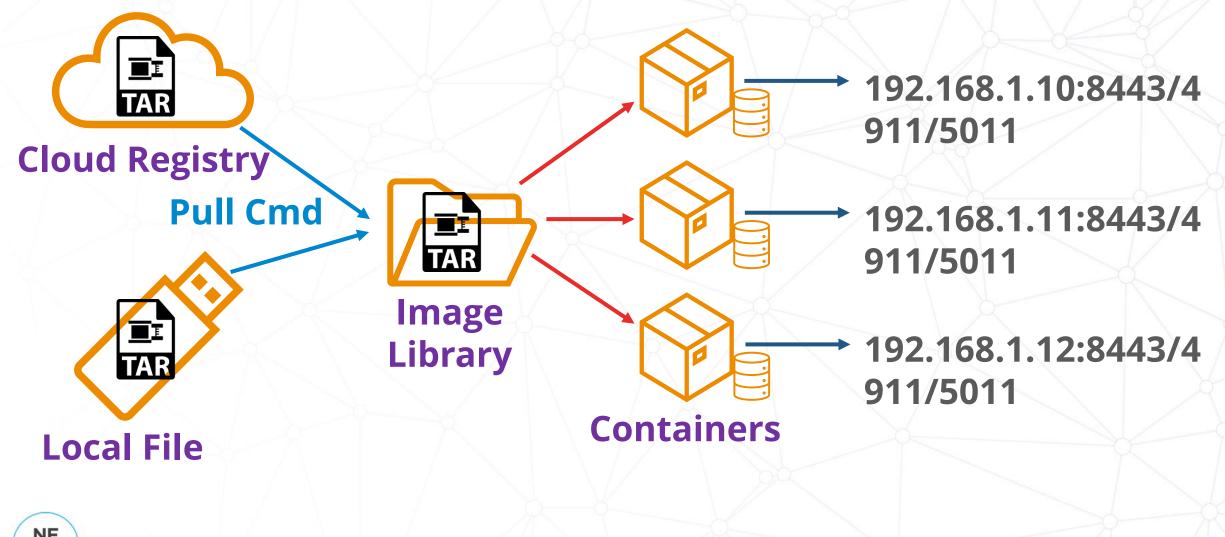
- Supervisor Container Models only support IP drivers
- Containers provide headless JAVA runtime
- Remote Workbench environment required to commission
- Browser support for station viewing and configuration







Container Workflow





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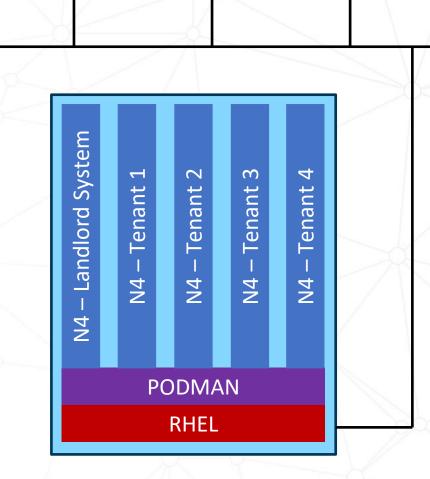
Deployment Example

Multi-Tenant Building









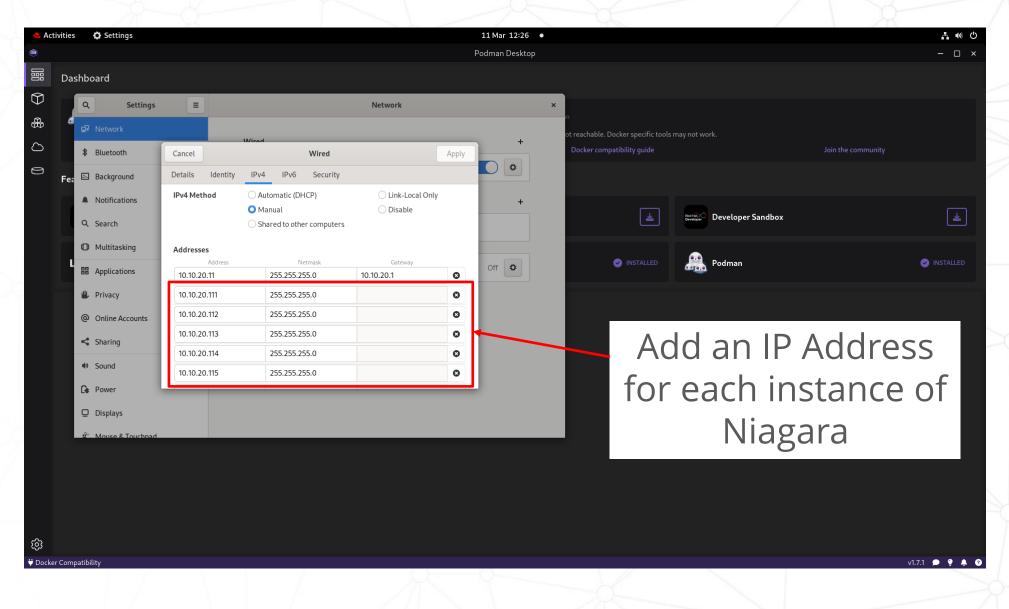
Project Requirements

- A total of 5 instances of Niagara Supervisors running on one host server
- Each Instance is required to have an individual IP Address
- Each Instance will use ports 8443, 5011 and 4911
- All instances may require connection on all 3 ports to each other and all JACE controllers



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Real World Experience

Peter Shepherd – Forest Rock

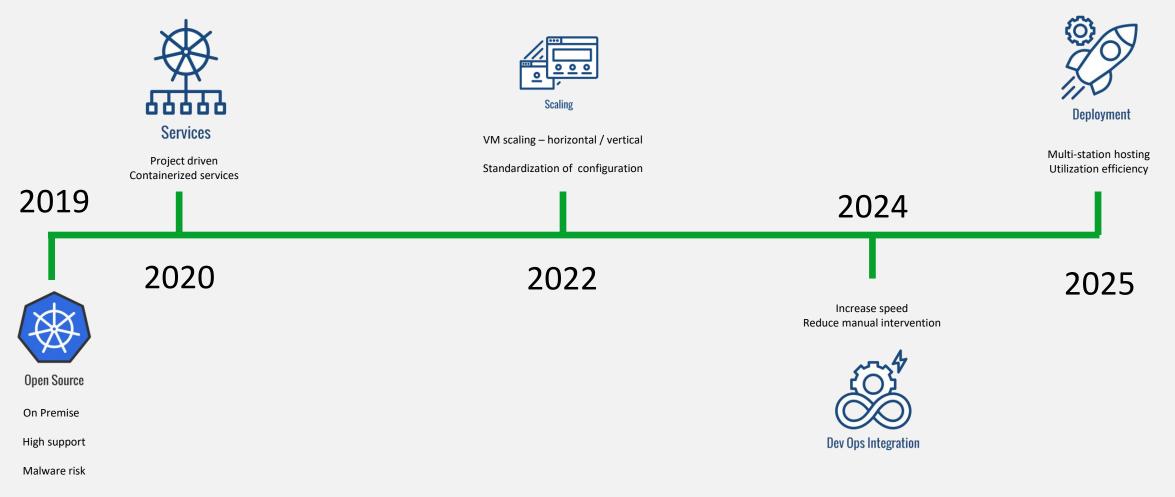




Forest Rock - Hosting Solutions

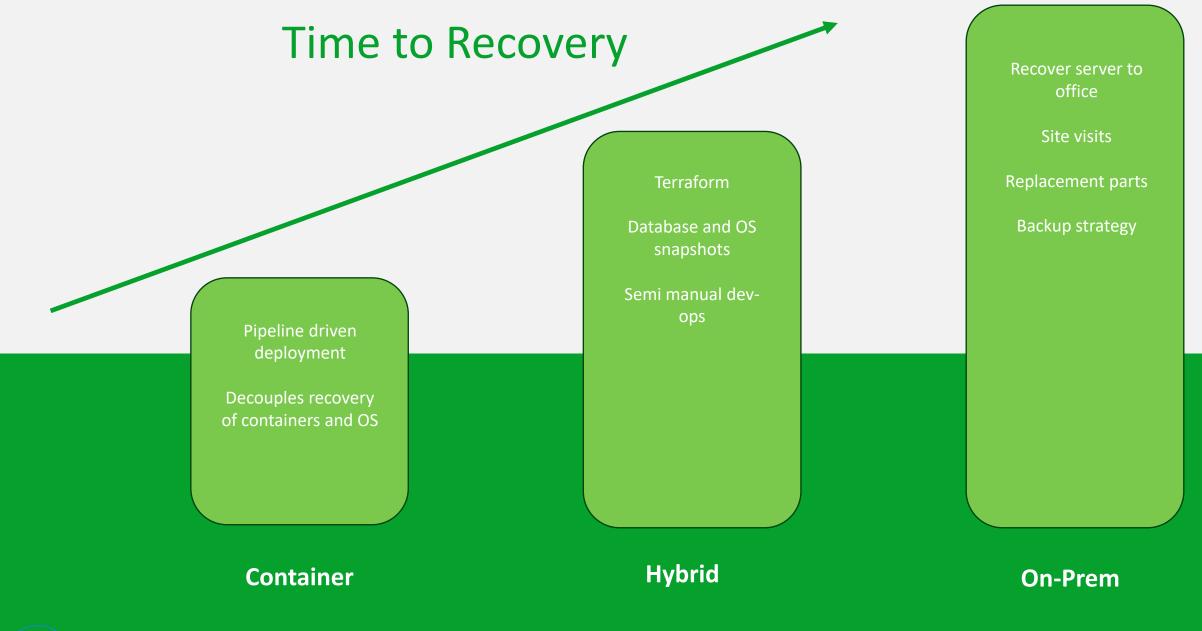


Forest Rocks' Hosting Journey





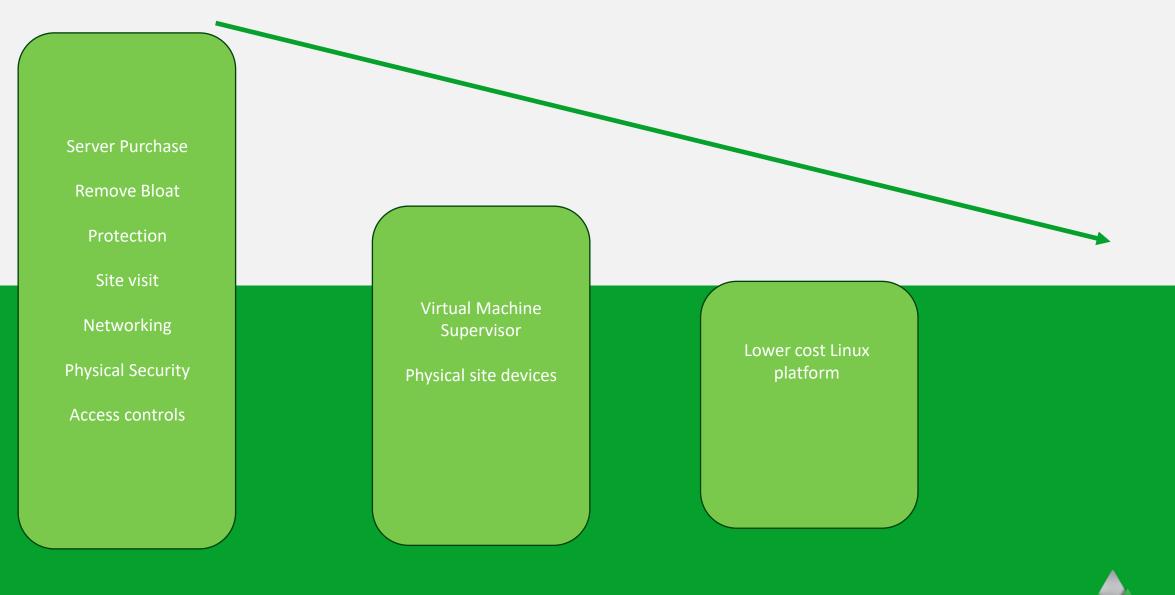








Time To Delivery



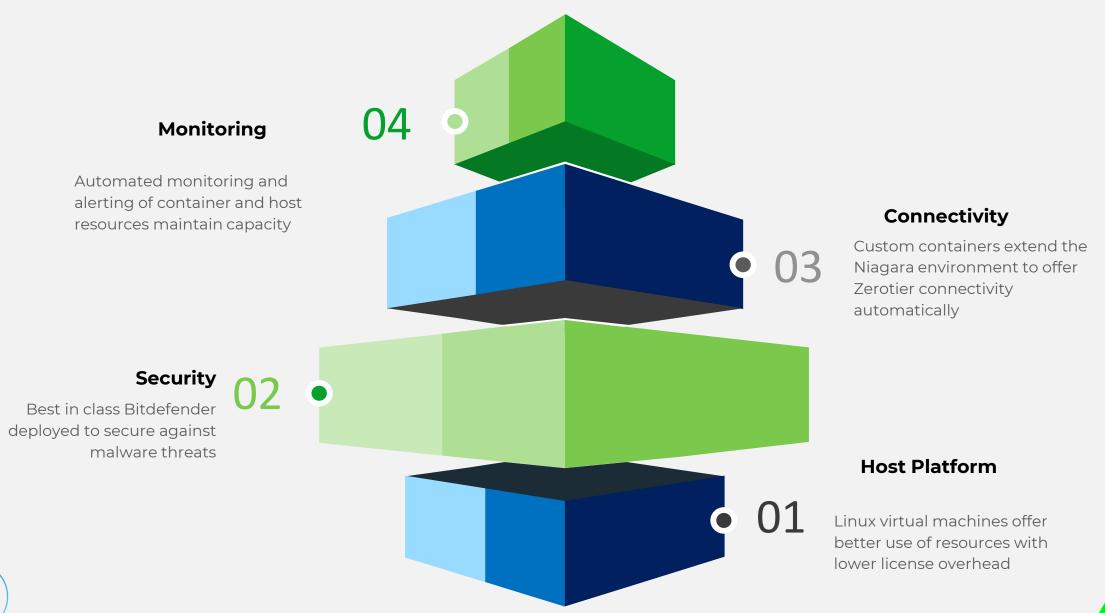
Container

Hybrid

On-Prem

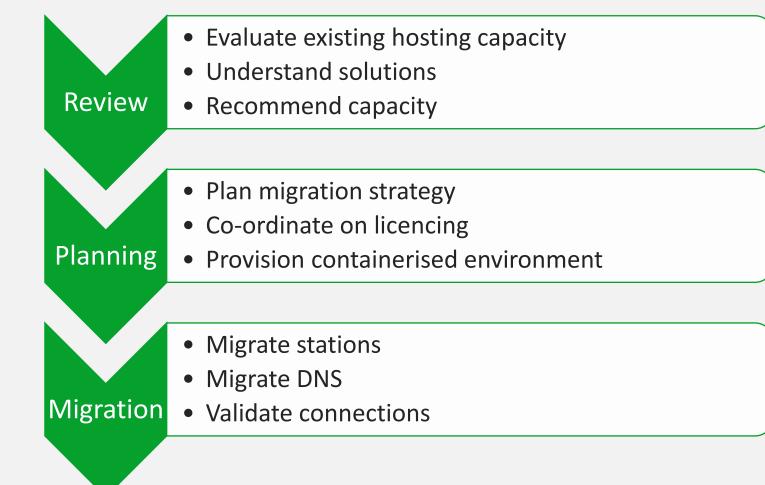
A Layered Approach

NF 25



Customer Case Study

"We no longer have the expertise to effectively run our customer solutions, how can you help . . . ?"







CONNECTING THE WORLD