



Hewlett Packard
Enterprise

NONSTOP TECHNICAL BOOT CAMP 2023

TBC23-TB62 - THE ART OF THE POSSIBLE 2023

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September 2023

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FORWARD-LOOKING STATEMENTS

This is a rolling (up to three year) Roadmap and is subject to change without notice

This document contains forward looking statements regarding future operations, product development, product capabilities and availability dates. This information is subject to substantial uncertainties and is subject to change at any time without prior notification. Statements contained in this document concerning these matters only reflect Hewlett Packard Enterprise's predictions and / or expectations as of the date of this document and actual results and future plans of Hewlett Packard Enterprise may differ significantly as a result of, among other things, changes in product strategy resulting from technological, internal corporate, market and other changes. This is not a commitment to deliver any material, code or functionality and should not be relied upon in making purchasing decisions.

Agenda

Market Trends & Customer Needs

Creating New Services & Solutions for NonStop

Get the most out of your Existing Applications!

Research Projects, Experiments, POCs & Innovation

Questions & Answers

The Art of the Possible: Innovating for Purpose & Outcomes

Customers' Desired
Business Outcomes
& Business Impact



New Solutions & Services

New Architectural & Deployment Models

New forms of Consumption & Licensing

New ways to Create/Expose Assets

Common Standards/Skills/Tools

NonStop Fundamentals

MARKET TRENDS & CUSTOMER NEEDS



What we hear from CIOs...

- Quick Time-to-Market and Time-to-Value
- Flexibility on deployment targets – one experience
- Cost effectiveness, low TCO & low Risk
- Leverage common technologies & standards
- High productivity of staff. No steep learning curve!
- User Experience. Ease of consumption & use!
- Quick and easy access, integration & composition of services and data
- Compliance, Regulation & legal Aspects
- ...with strong architectural qualities



CREATE MODERN SOLUTIONS FOR NONSTOP

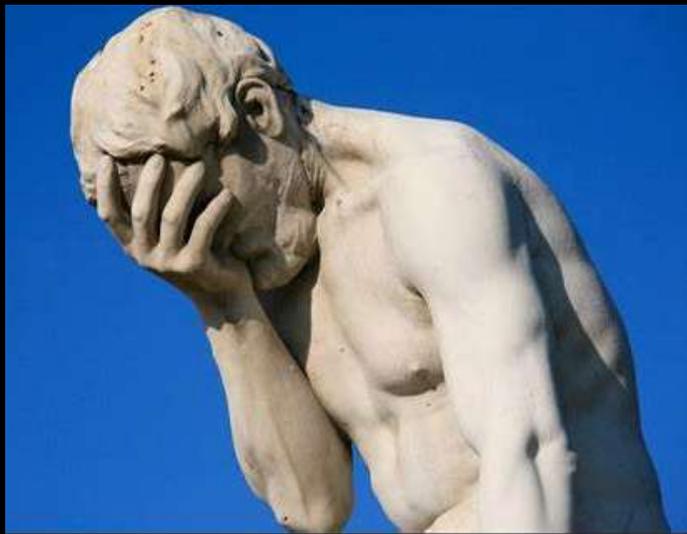


Quo vadis CIO?



Talk to the Geeks about Technology Choice for New Services

- Microservices
 - Database per Service
 - Compensating transactions
- APIs, API Gateway
- Polyglot Development
- DevOps
- Containers
- Kubernetes
- Deploy on Hyperscalers



All great in Powerpoint. Not so much in real life....

One little example -- achieving scalability in Kubernetes:

Autoscaling requires an extra add-on to Kubernetes – the Metrics Server, and that is a quite complex task. Kubernetes is not the same everywhere. Each cloud provider has different, unique config parameters to achieve autoscaling. Developers need to manually configure the Kubernetes autoscaler for each public cloud. Compare this to NonStop

“Now you went from writing bad code to building bad infrastructure”

Source: Kelsey Hightower; changelog.com/posts

Image Sources:

<https://www.newgrounds.com/art/view/flufflyanimations/dancing-engineer>

<https://en.wikipedia.org/wiki/Facepalm>

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Speak to IT Analyst Firms

IT Analysts popularize different architectural styles or modes of IT

1. Traditional, robust, slower, critical services, enterprise class, scalable, cost focused
2. Innovative, agile, TTM/TTV extremely important, opportunity focused

Examples:

- Gartner: Bimodal IT©
- McKinsey's two-speed architecture

Two modes of IT:

Robust, well engineered services

Innovative, agile services

The Challenge: It is easy to develop new services anywhere, but what is the effort to scale and make it HA?

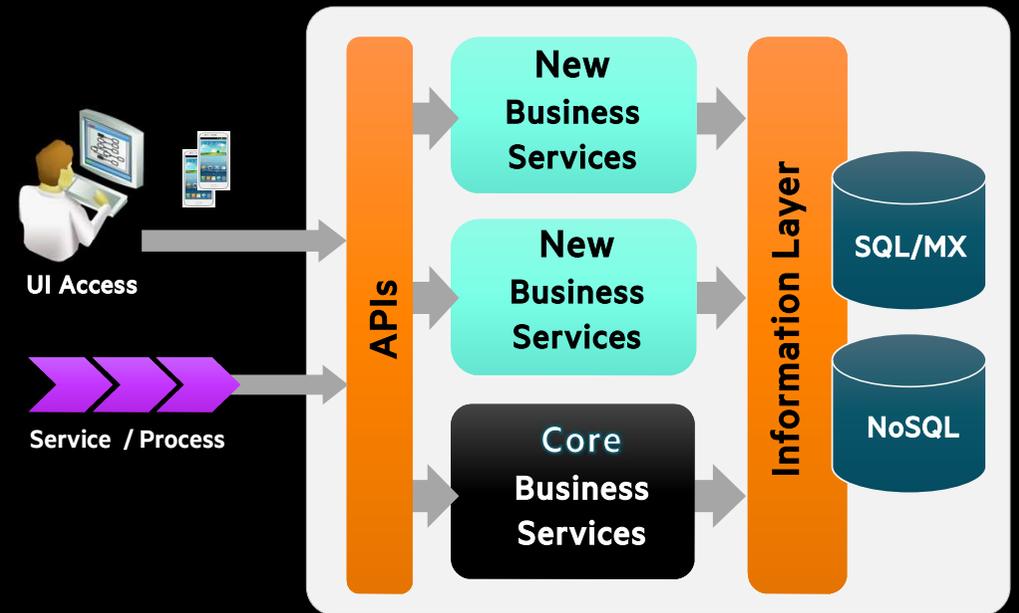
Question: Wouldn't it be nice to have an architecture and platform that could handle both modes equally well?



The Answer to the CIOs Challenges is...

HPE NonStop...

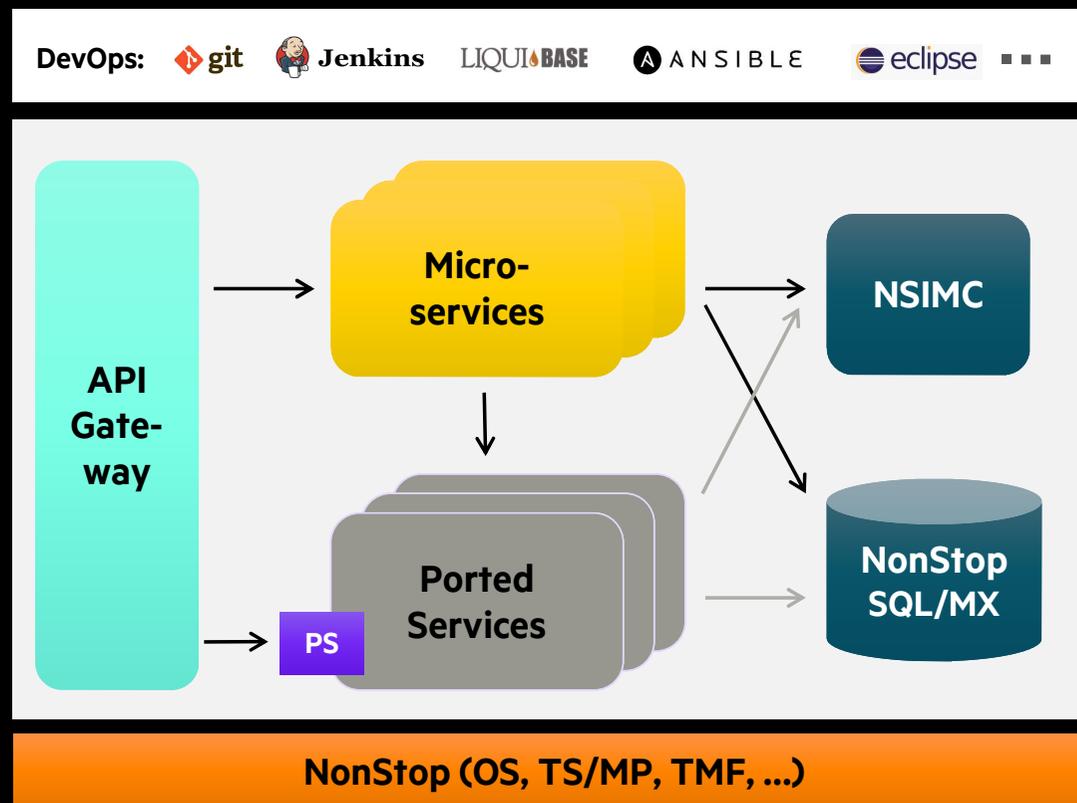
- uniquely combines the two IT styles
- future protects your existing services
 - Wrap, expose, reuse from new services
- allows building new services like on other platforms leveraging cool stuff, such as microservices, APIs, DevOps, In-memory DB, ...
- inherits automatic scalability and fault-tolerance to your services. Just deploy your services on NonStop!
- takes care of the hard parts – so your developers and admins don't have to!
- We'll give you the same experience on-prem and on clouds



You can focus on your business outcomes. We facilitate your innovations without technical debt!

How to build new, modern Applications & Services on HPE NonStop

- Create entirely platform agnostic Applications
- Leverage state-of-the-art technologies, tools & practices and ubiquitous skills
- Strong leverage of open source
- Your services transparently inherit our fault-tolerant and scale out capabilities.
- Capable to scale-out over 1000s of processors
- Virtualized or Converged
- API enabled
- DevOps driven
- Following cloud native principles
- Features to accelerate ports to NonStop



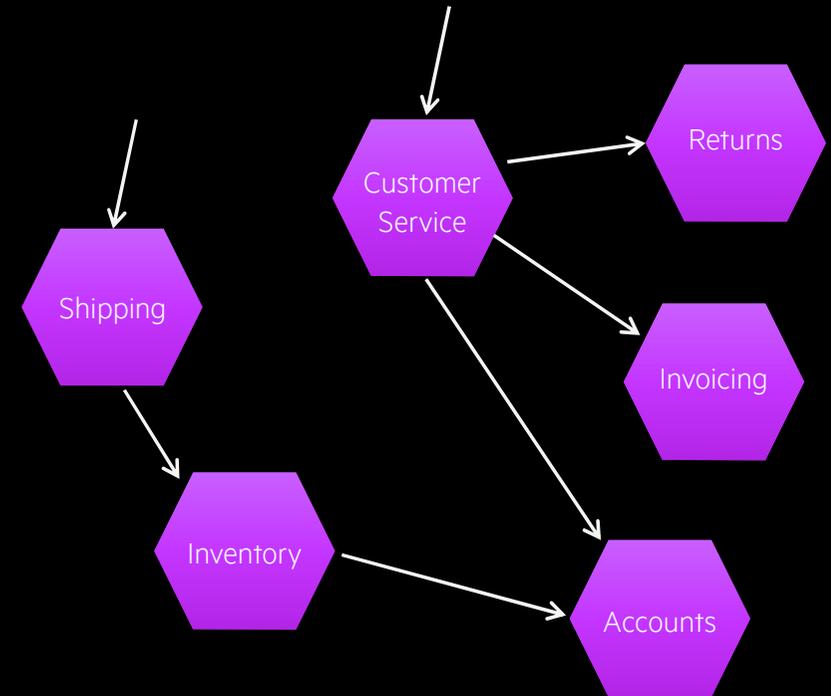
PS

...NonStop PathSockets



Microservices

- Microservices are the dominant architectural style for implementing modern enterprise software services
- Some characteristics of microservices
 - Independently deployable and manageable
 - Services are loosely-coupled and stateless
 - Single responsibility
 - Domain driven design (DDD)
 - Polyglot
 - Great testability and maintainability
 - ...sounds familiar?
- Popular microservices frameworks run just fine on NonStop, e.g. Spring Boot, Vert.x, etc.
- Deploy standalone or in NonStop middleware, under TS/MP control



APIs - Living in an API-Driven World

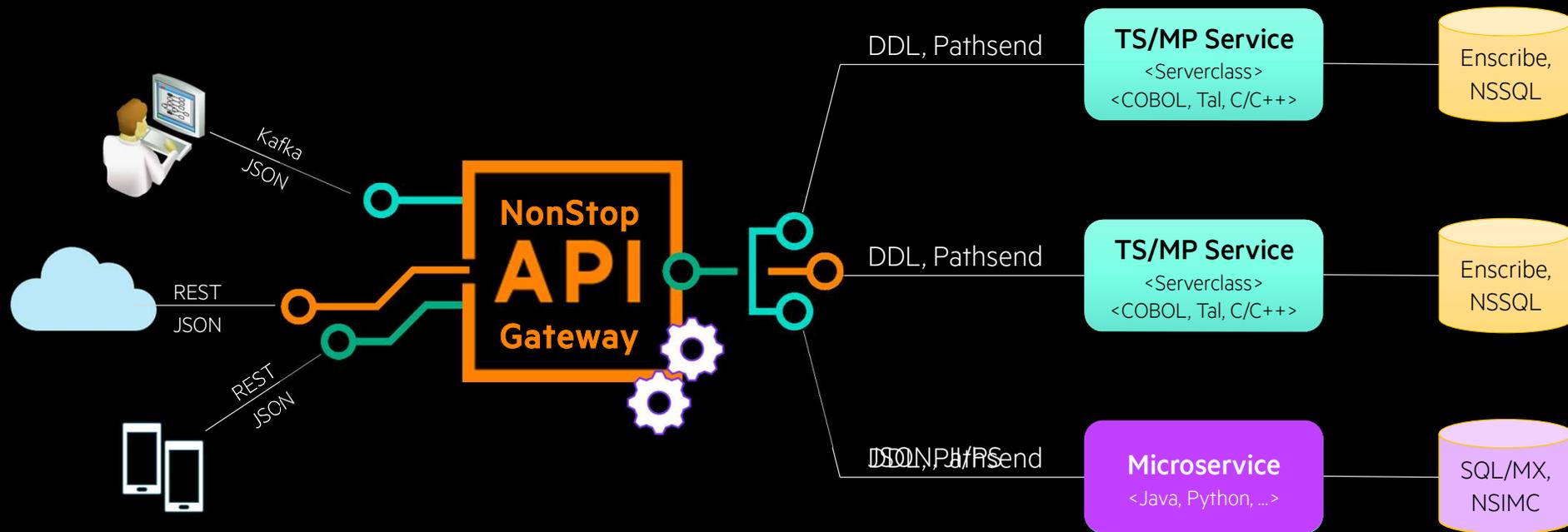
- APIs are ruling the world
- APIs everywhere – from business-/data-services, to manageability, ...
- Popular everywhere – from edge to cloud, from on-prem traditional to public clouds
- Built upon Service Oriented Architecture (SOA) principles
- A must-have in an as-a-Service world
- REST: simplicity wins

- REST/JSON is most popular
- Alternative choices available on NonStop
 - e.g. GraphQL, OData, ...



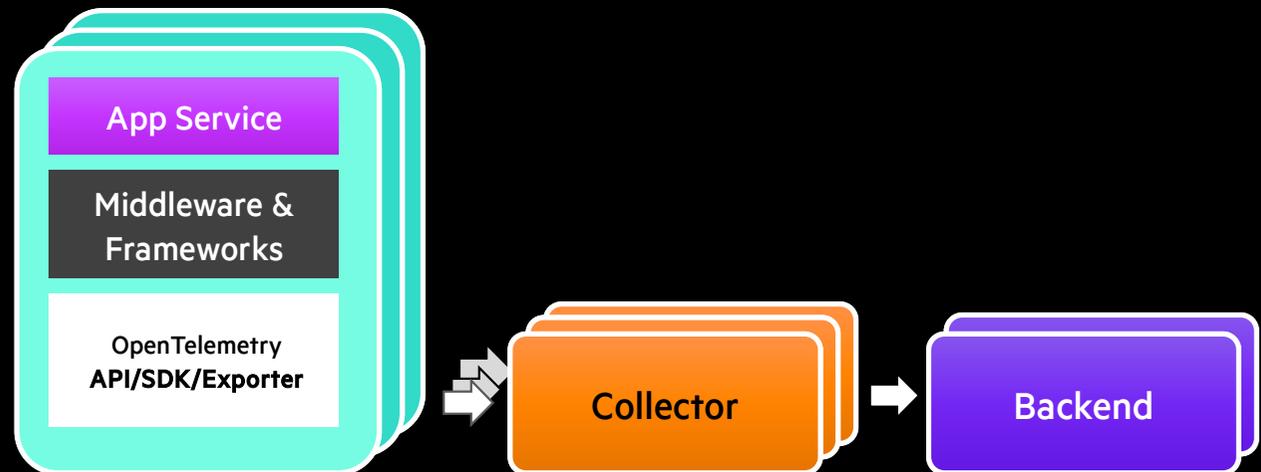
NONSTOP API GATEWAY - No-Code API Enablement

- Single point of entry and security control
- Open, extensible, clear separation of concern
- Gateway & Proxy-mode



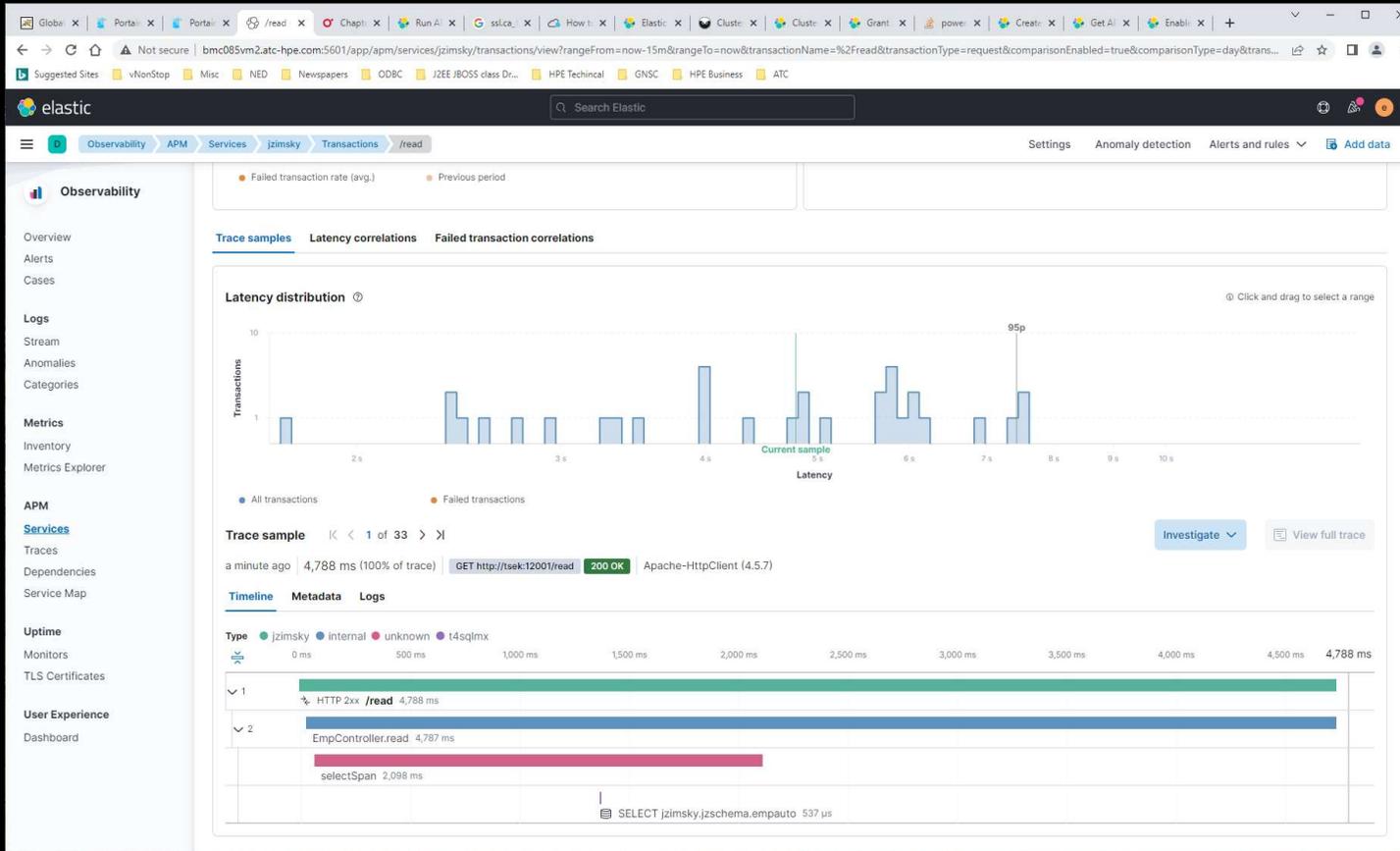
Observability

- Today's business use cases oftentimes consist of many distributed services spread over a heterogeneous IT environment
- Problem and pain point: smaller grained, highly distributed services with lots of interactions can make it very hard to maintain a good overview of the system's status – and extremely difficult to spot issues in a timely manner
- Focus on allowing to reconstruct a systems state through external observation
- Emerging from Application Platform Monitoring
- Three pillars of distributed services:
 - Tracing (Concept of Spans)
 - Metrics (e.g. Rate, Errors, Duration,...)
 - Logging
- Complements DevOps
- Lots of Open Source:
 - OpenTelemetry!
 - ...and many more



Observability Example: OpenTelemetry Agent in Spring Boot on HPE NonStop with ELK Backend

Open Source



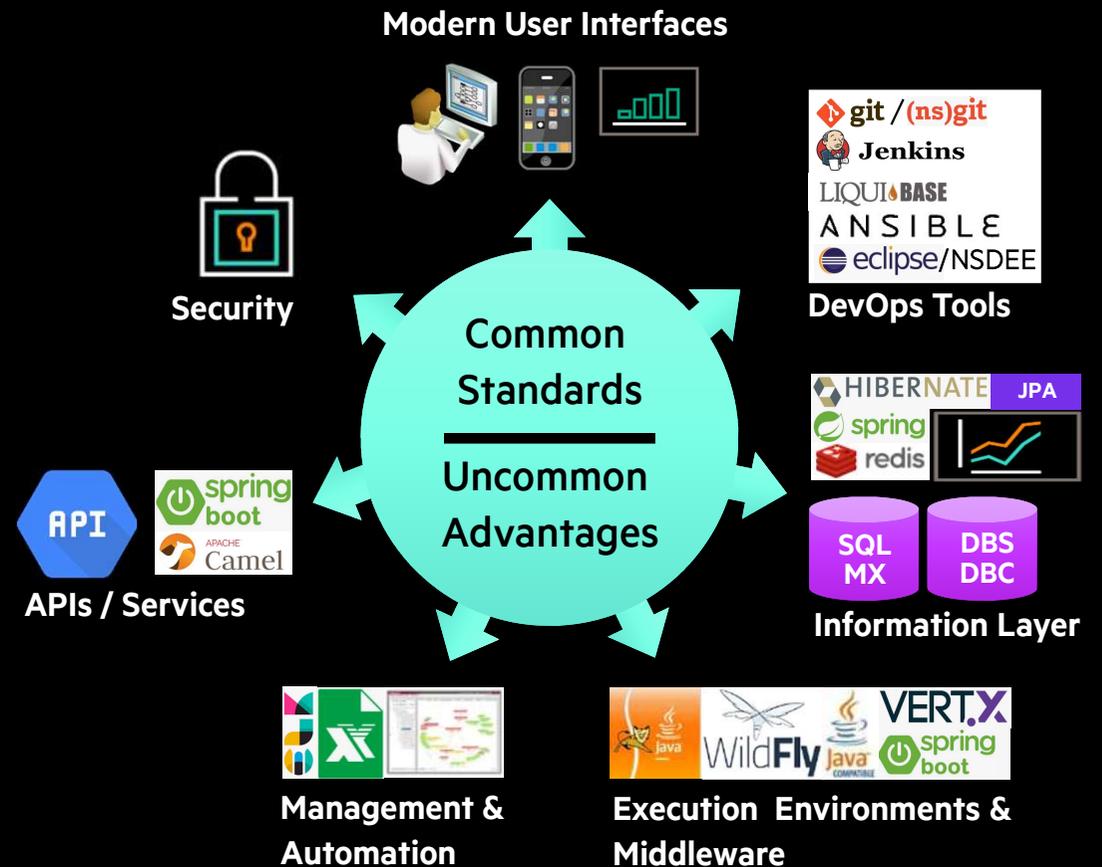
GET THE MOST OUT OF YOUR EXISTING APPLICATIONS!



NonStop Modernization Domains

The **seven technology domains** to address customer needs for modernizing software architectures:

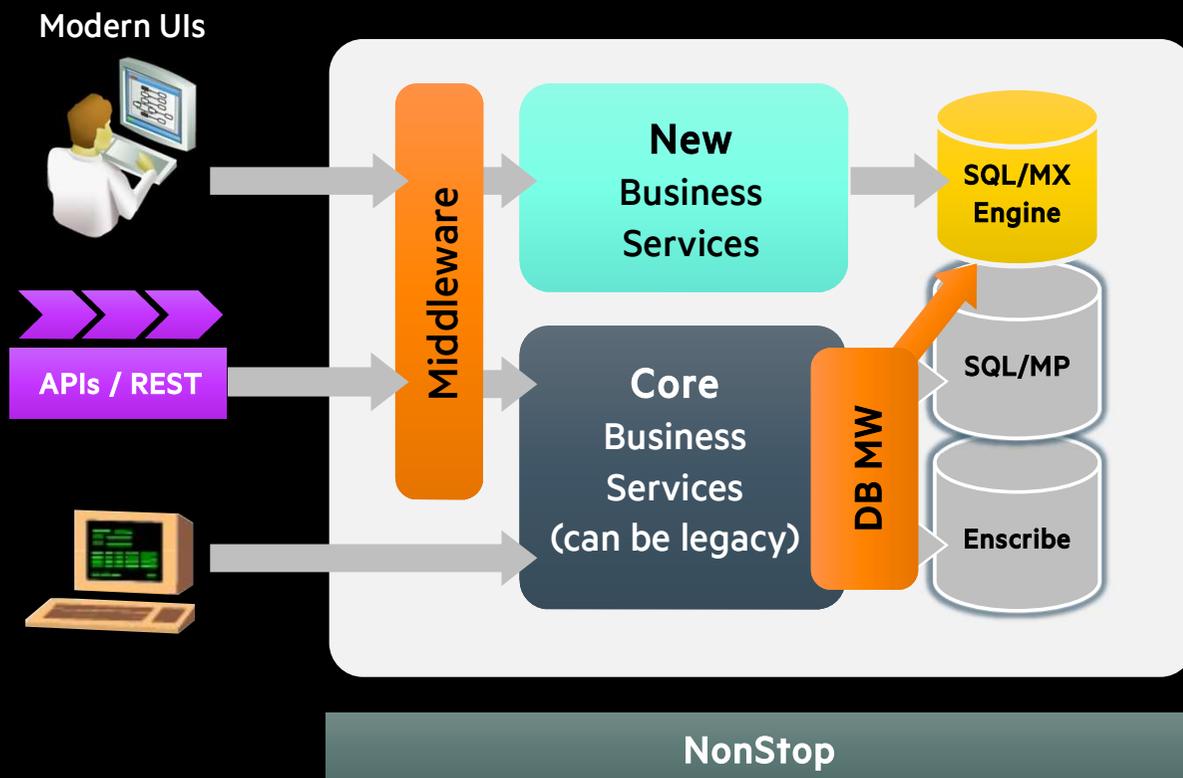
- User Interfaces
- APIs and Service Orientation
- Information Layer
- DevOps Tools
- Management & Automation
- Security
- Execution Environments



Modernization Strategy: Smooth Paths towards Modern Architectures

Focus: Business Outcomes & Value

- Evolutionary: Smooth Path/Low Risk, no big bang
- Quick Time-to-Market/Value
- Clean & Simple (no complexity!)
- Reusable & Extensible
- Easy to expose assets
- Develop new business services using ubiquitous skills
- Robust & Scalable from the beginning



MODERNIZE EXISTING NONSTOP DATASTORES



Enscribe

- NonStop ISV Partner Products
- GraphQL
- Shadowbase Replication



NonStop
SQL/MP

- Leave existing apps unchanged
- Use SQL/MX engine with your existing MP tables for new services, remote access and tools



NonStop
SQL/MX

- Congrats, you're top notch already!!

What if your company already adopted Kubernetes & Co?



NonStop Database Services (DBS)

The most robust Data Backend on the market that brings your solutions to the next level

Fault-tolerant, Massively Scalable, Flexible, Multi-tenant, DevOps ready

Consumer Infrastructures

Bare Metal /
Converged

Private Cloud VM

Containerized
Docker/Kubernetes

Oracle / COTS Apps

Edge

DBS Access & Tooling

JDBC

ODBC

JPA

Hibernate

Liquibase

webDBS

Provisioning

Database Compatibility

NonStop DBS

Tenant



Tenant



Tenant



NonStop OS

OpenJDK (the "Name") is a trademark of Oracle America, Inc. ("Oracle") (the "Trademark Owner").
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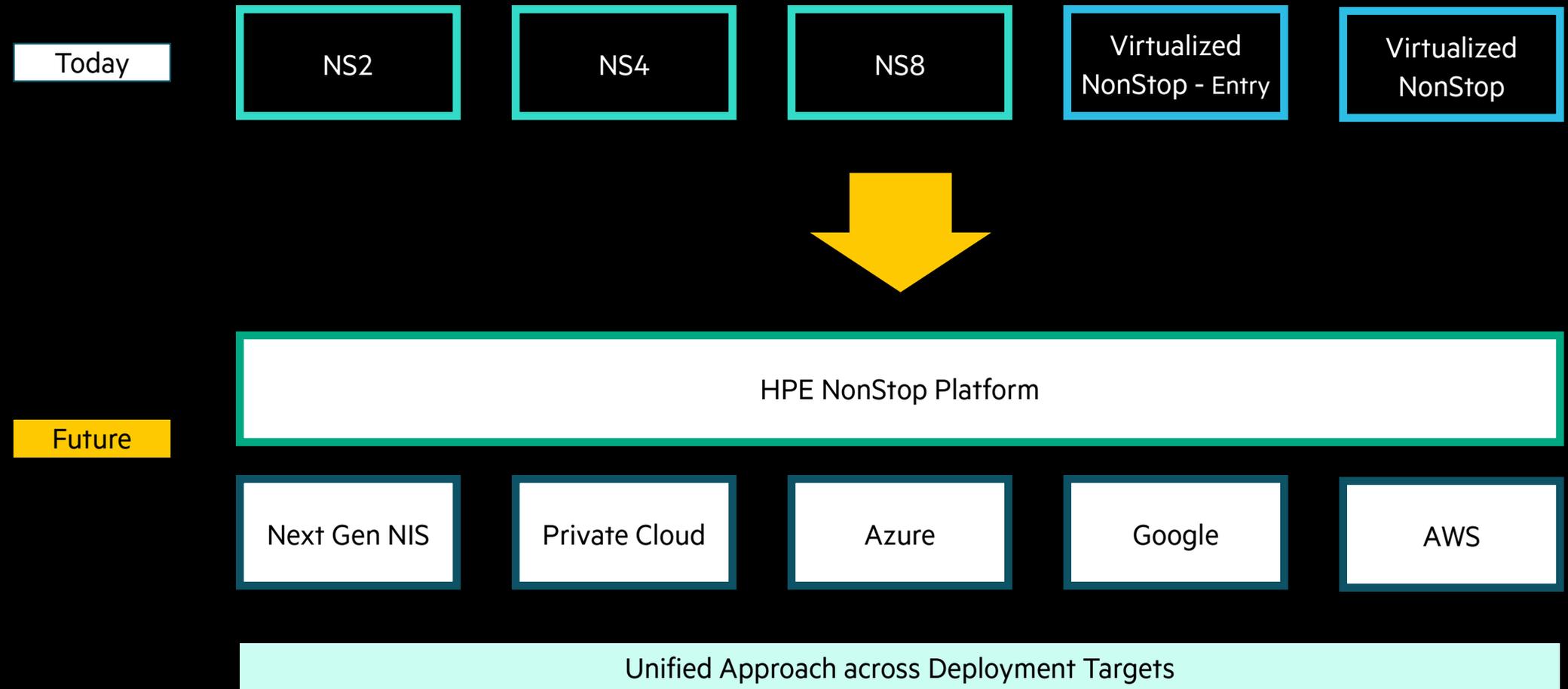


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RESEARCH PROJECTS, EXPERIMENTS, POCS & INNOVATION



HPE NonStop Platform - Strategic Direction



Platform Innovation

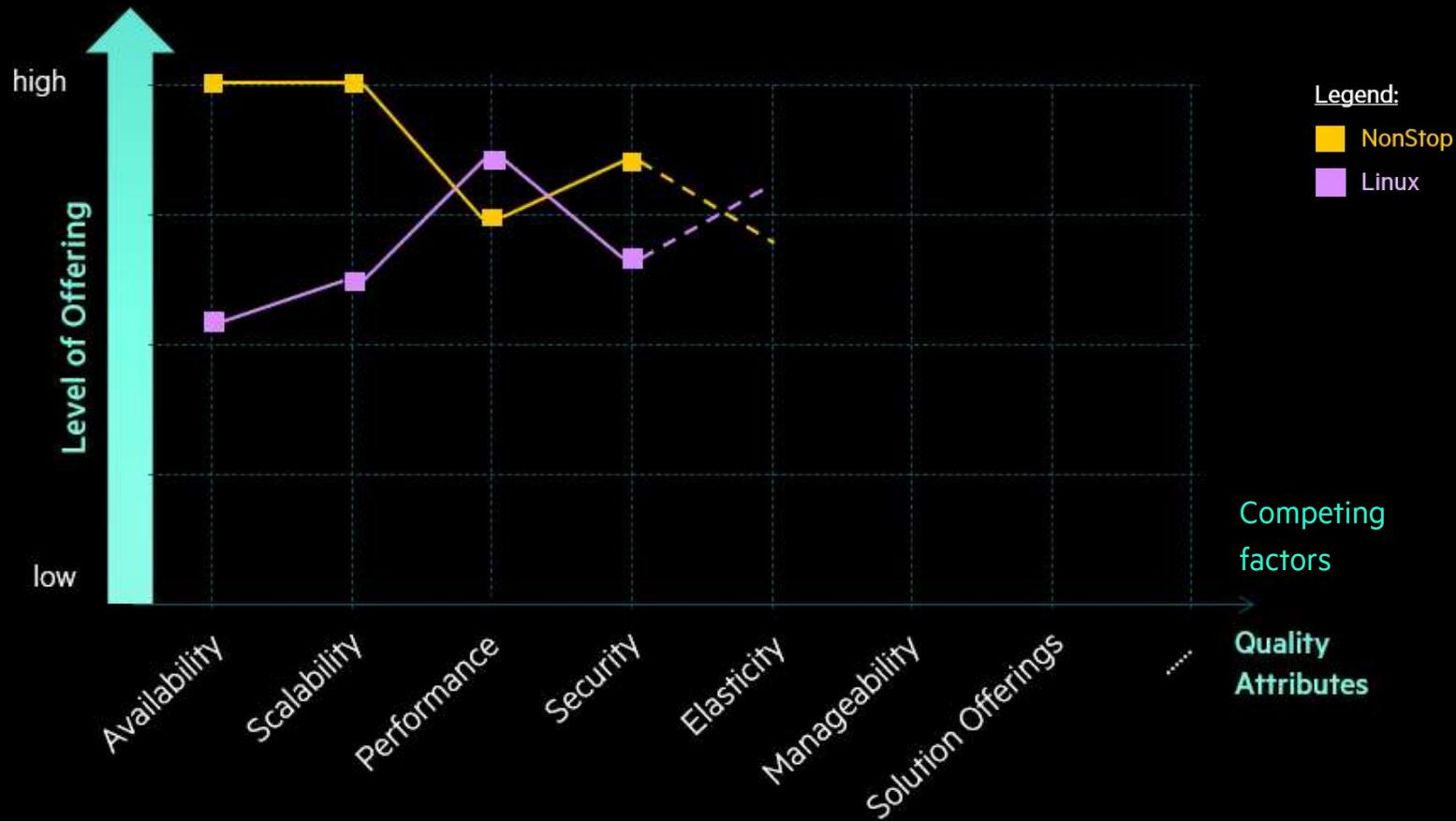
With NonStop's effort to establish a unified architecture across a wide range of deployment options – from on-prem to colo to cloud – a new set of transformational innovation questions emerges



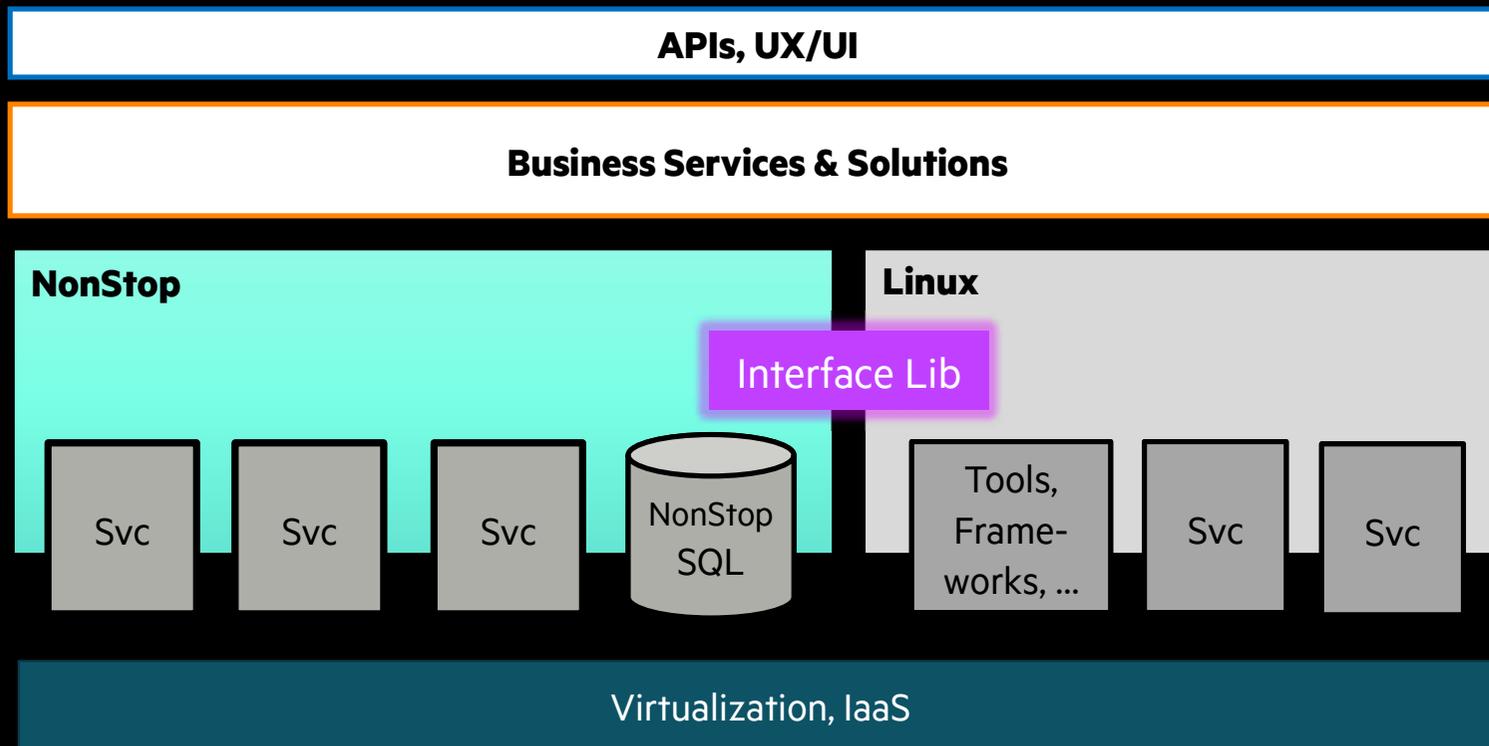
What if...?

- What if we could combine the robustness of NonStop with the richness of choice offered elsewhere?
- What if we could easily bring new solutions onto NonStop over without a major porting effort?
- What if these solutions and services could inherit some of NonStop's unique benefits?
- What if we had almost unlimited access to open source tools, languages and frameworks?
- What new value could we generate for your business?
- Which of your underserved needs and pains could we help you address to win big in your business?

Architectural Quality Attributes & KSFs Revisited



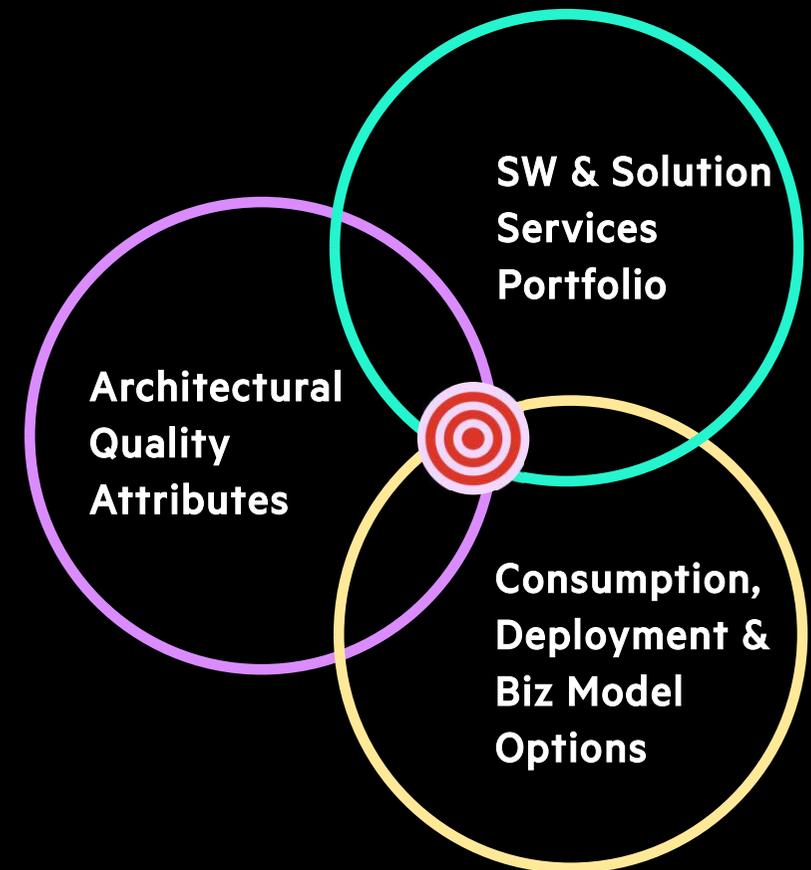
What could the Architecture look like?



Benefits

- Enable best of both worlds and create a unique combination of architectural quality attributes
- Quick Time-to-Market/-Value
- Non-intrusive bidirectional integration
- Enabling lots of new use cases
- Lots of new technology choices
- Boost in solution portfolio with unbeatable characteristics!

**We want your concrete feedback and needs.
Please talk to us at the event or soon after!**

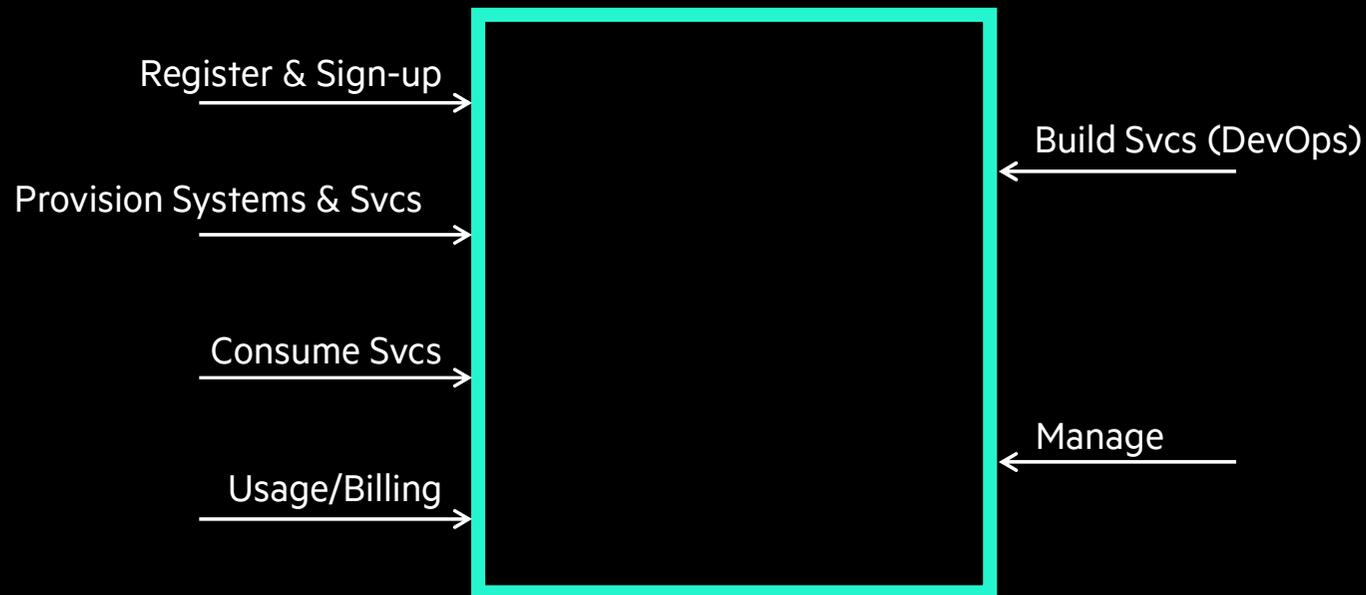


The Digital NonStop Portfolio

- The Digital NonStop Portfolio shall give customers a unique, seamless experience to systems- and business-/technical services, quickest Time-to-Market/Value, great user experience, etc.
- NonStop as a Service (NSaaS) and the NonStop Control Plane architecture build the foundation.
- The NonStop Digital Portfolio takes full advantage of NonStop's innovation to build a unified architecture across deployment environments (Azure, Google, colo, private/on-prem).
- Irrespective of the deployment target customers shall have a choice of ready-to-use apps/services through a Marketplace or can build/deploy their own apps/services instantaneously.
- Customers shall be able to decide their ideal management model (self managed, managed services, ..)
- Enables new business model, financial- and value model options.

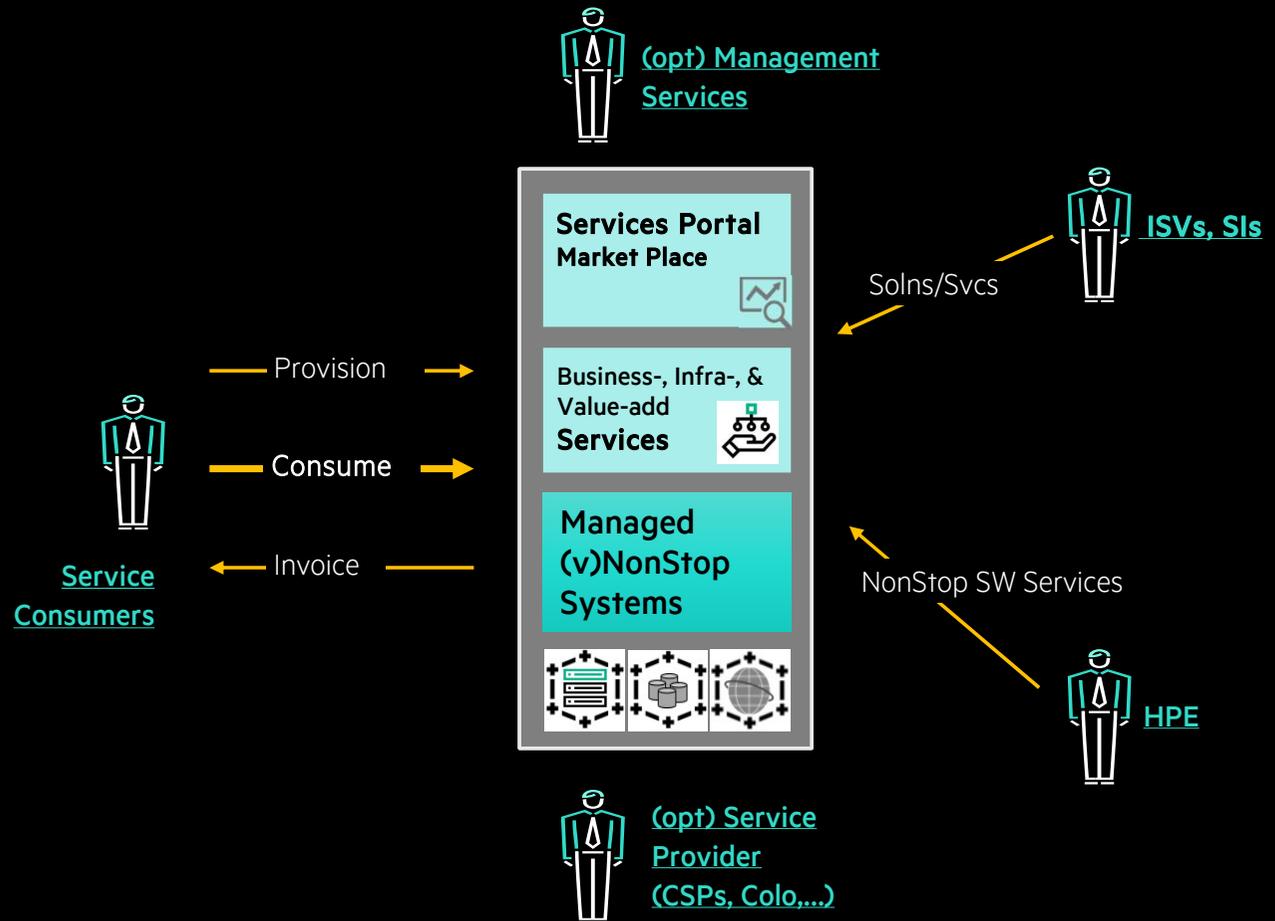
Black Box View of what „as a Service“ looks like

A view from 30'000 ft...

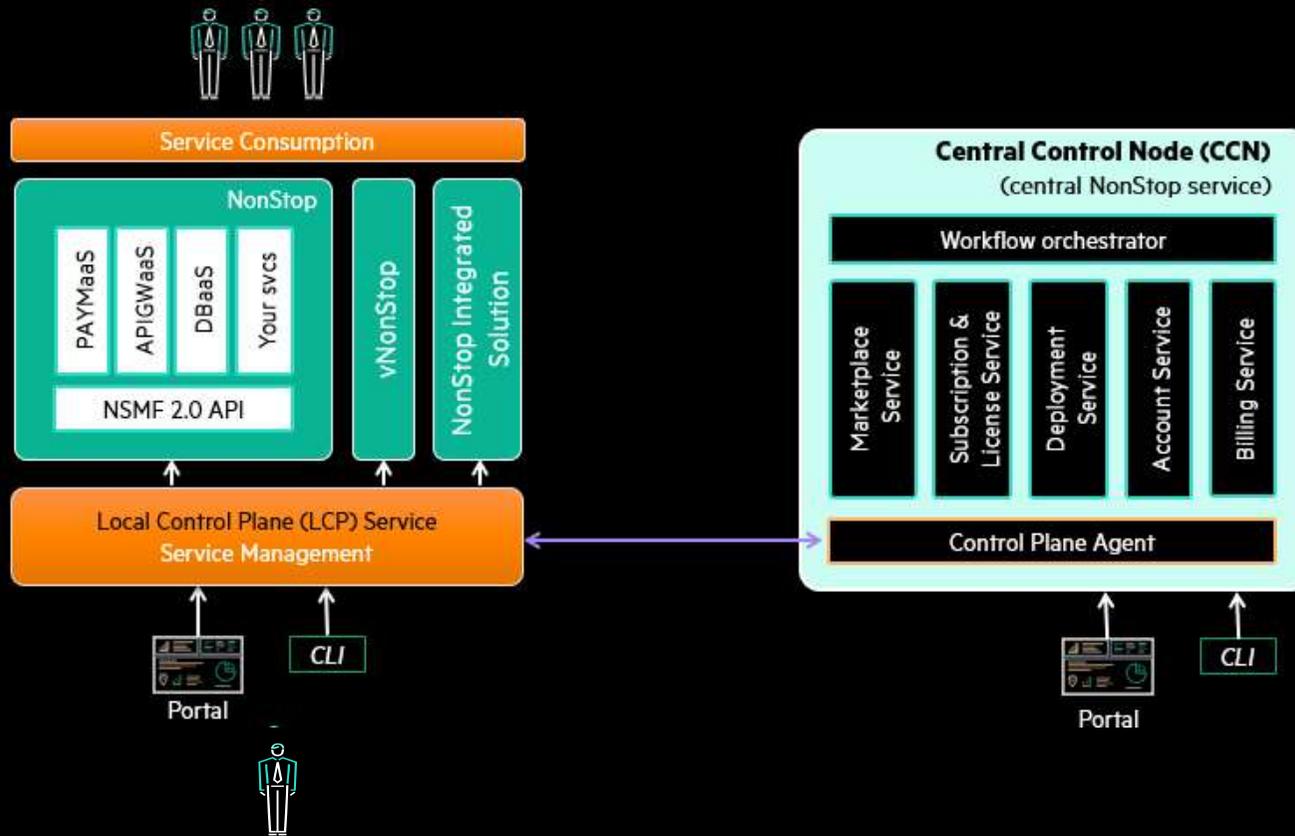


NonStop as a Service – Conceptual Model

- **Accelerated** time-to-value with simplified, **self-service provisioning**
- Deploy services anywhere - in **public cloud, Colo or on-prem, cloud or not...**
- **Standardized** processes for rapid, consistent deployment and lifecycle management of services/deployments
- Manage **multiple services/databases** through single pane of glass
- **Maintain** security, compliance, and data sovereignty
- Single point for **Support**
- **API- driven**, seamless integration into existing environment with modular approach

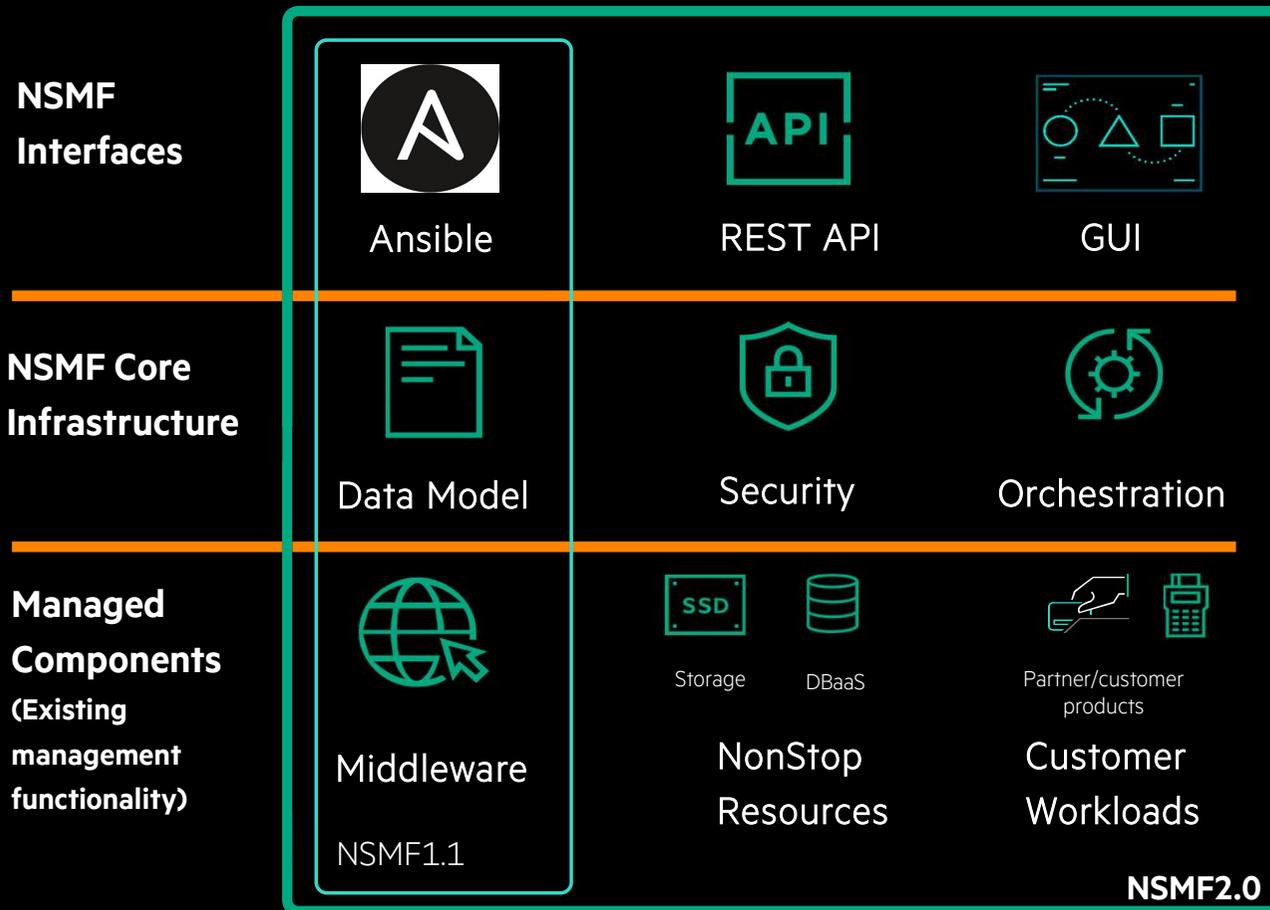


NonStop Services Control Plane Concept



Leverages our upcoming NSMF2.0 Management Architecture

R&D / Future



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Validation use case for NSaaS

Database as a Service (DBaaS) Use Case



Control node and vNS system deployed in **public cloud**



Portal

To provision and manage services and deployments

Single pane to provision, monitor and manage multiple databases



NonStop system access **NOT** required to manage and consume databases

End-to-End security with **RBAC** policies and **Tokenization**



User Management



Admin operations like **Backup and Restore**



Metering data (for consumption based billing)

Example: User Experience

HPE Cloud NonStop Dashboard

Cloud NonStop Dashboard

Active Subscriptions

XYZ Bank User and Transaction Dept with 10TB Database st...

64EF62B82F9F4CF061E956C

10TB
8 Database Instances

Launch

XYZ Bank Admin Department with 25TB Database storage

64EF63372F9F4CF061E954D

25TB
10 Database Instances

Launch

XYZ Bank Sales Department with 2TB Storage for database...

64EF633C2F9F4CF061E95AE

2TB

XYZ Bank Corporate IT Department with 10TB Database sto...

64EF633A2F9F4CF061E95AF

10TB

Recommended for You

Know more about HPE NonStop DBaaS
See the latest information.

[Learn More](#)

HPE Cloud NonStop Dashboard

Deployments

Add and view your deployments

Subscription Details: Search Deployment Names

Deployment Details: 3 Item(s)

Deployment Name	Status	Configured Storage GB	Used Storage GB	
User-info-DB	STARTED	50	18	...
User-Transaction-Info-DB	STARTED	500	80.8	...
User-Activity-DB	PAUSED	100	92	...

Service Summary

Storage: 190.8 out of 650 utilized

Database Instance(s): 3 out of 15 utilized

HPE Cloud NonStop Dashboard

Manage Users

Manage the user list under the subscription [Invite Users](#)

Subscription Details: Total Users **1**

Deployment Details: Active Users **1**, Inactive Users **0**, Unverified Users **0**

Manage Users: Search Users

Name	Email	Status	Role	Last active	
<input type="checkbox"/> JD	John Doe	john.doe@xyzbank.com	NOT VERIFIED	subOwner	NA

HPE Cloud NonStop Dashboard

Deployment Details

Database Deployed

View and edit database details

Name	Status	Version	Max Connections	Active Connections	Configured Storage (In GB)	Used Storage (In GB)	Database URL
User-info-DB	STARTED	1.1.3	4	2	50	18	TSEK2006

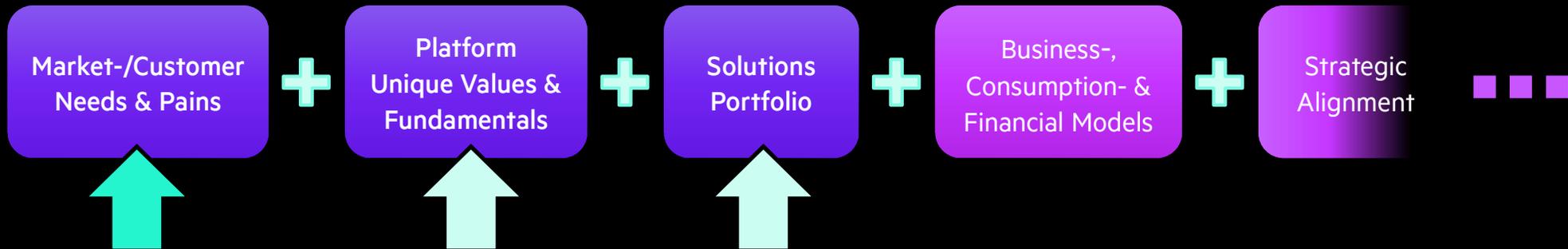
View: Schemas Users Connections Storage

Schemas: User-info-DB

Name	Owner	SubVolume	Version	Created
<input type="checkbox"/> GL_ONE	NSaaSUser	ZSDHM1PC		2023-01-01 15:05:23



The Foundation of increasing NonStop's Future Impact



We'd love to hear & learn more on these from you!
Please get in touch with me!



SUMMARY



THE ART OF THE POSSIBLE - A REALITY TODAY

- NonStop innovates to help you win stronger in future!
- Solve your toughest, mission critical challenges in modern, state of the art ways by leveraging common skills & tools!
- Improve your business outcomes by modernizing where it matters most
- HPE & Partners have everything to build modern, unique solutions and architectures on NonStop today!



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THANK YOU FOR ATTENDING THIS TALK TBC23-TB62 - THE ART OF THE POSSIBLE 2023



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NonStop Partnership– It’s a Beautiful Thing!



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