



인프라 가상화와 차세대 데이터 센터

전창범 수석 클라우드 컨설턴트 & 나승주 인텔코리아 이사
Networked Society Day 2017

CONTENT

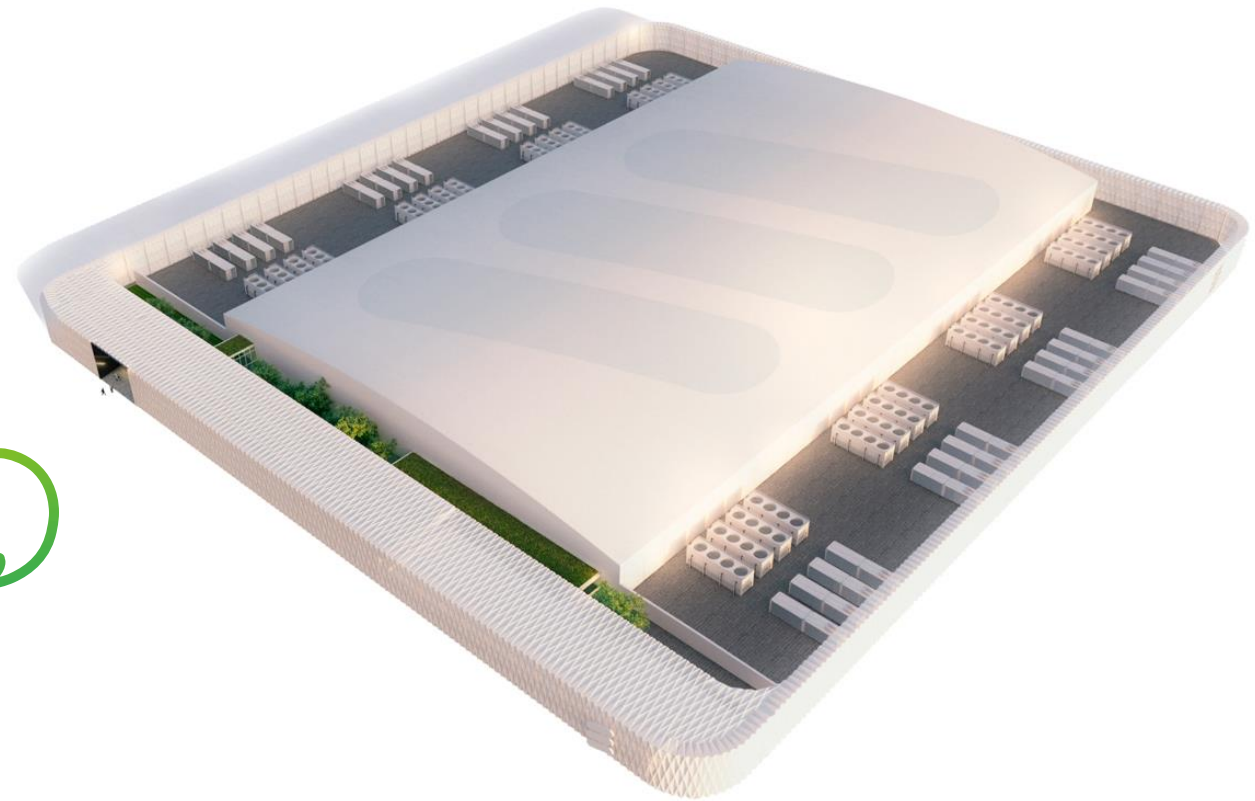
- > Infrastructure Transformation
- > Intel Rack Scale Design
- > HDS8000 the 5G Cloud Infrastructure
- > CEE for 5G NFVI

> INFRASTRUCTURE TRANSFORMATION

IN FUTURE, DATACENTERS WILL BE THE NEW FACTORIES

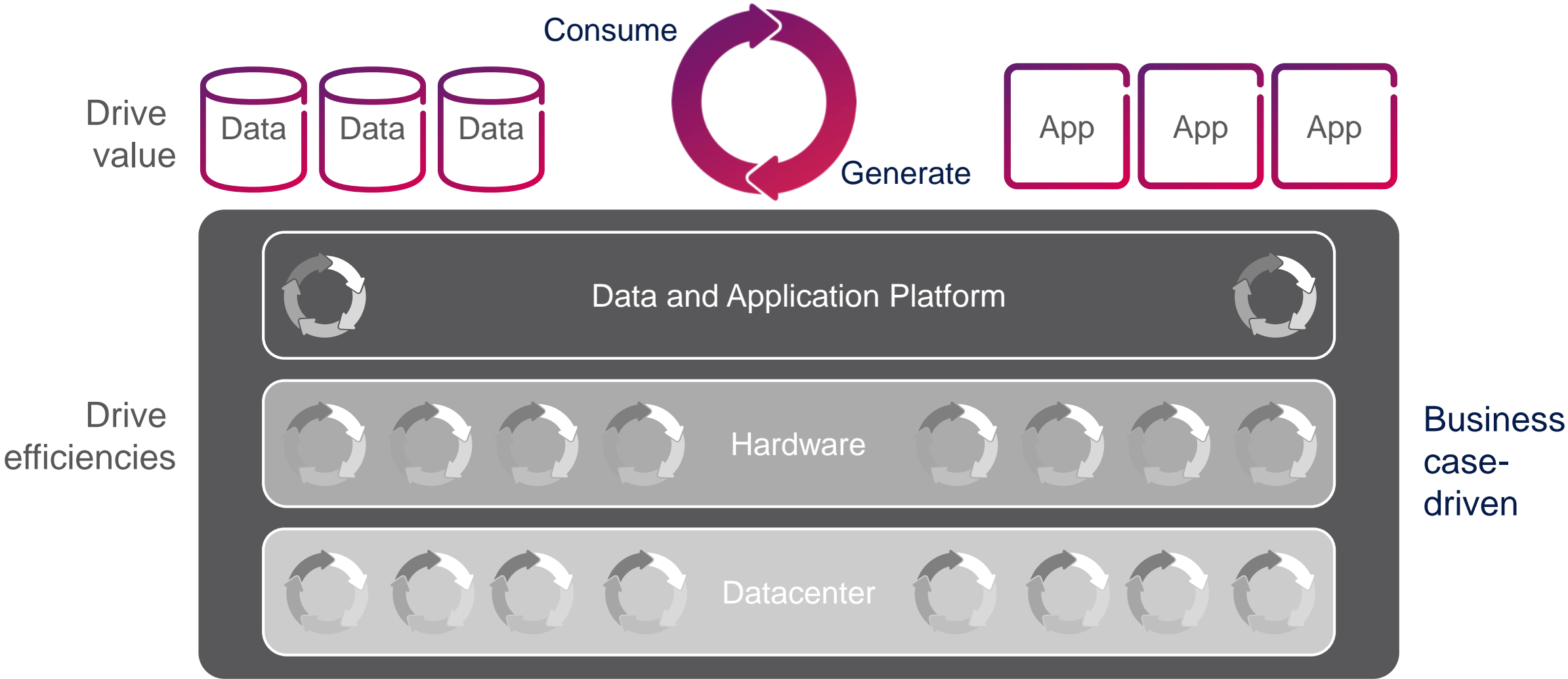


For most they are designed and treated as just a building with a lot of IT equipment



THE MODERN DIGITAL FACTORY

Industrialization Cycle across all levels

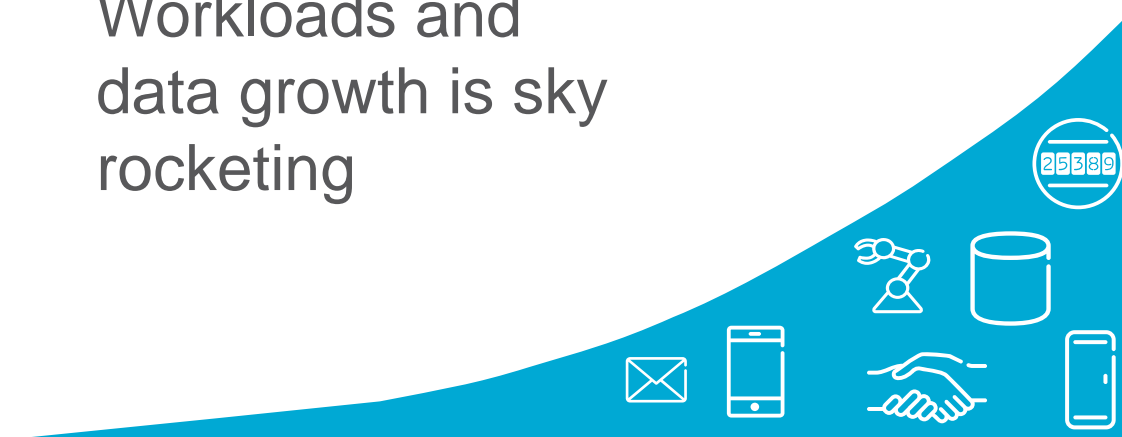


CHALLENGES AND OPPORTUNITIES

IT infrastructure silos with low utilization

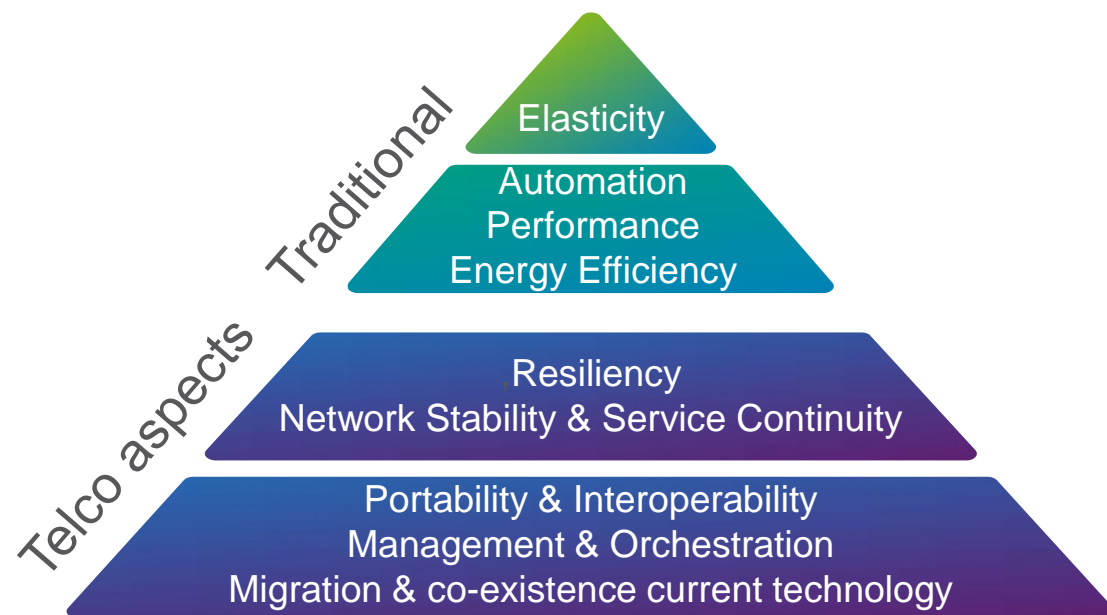


Workloads and data growth is sky rocketing



Weeks / months

Low feature velocity – slow Time To Market





INTEL® RACK SCALE DESIGN

나승주 이사

한국 데이터센터 영업 총괄

Data Center Group Sales, Intel



ERICSSON

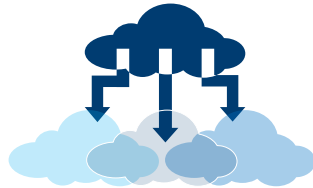
POWERING TELCO CLOUD

Carrier-Grade Resilience ... Cloud-Pace Innovation

Cloud Transforms
Business



Cloud for All
Infrastructure



BUSINESS MODEL INNOVATION

“Born in the Cloud”
Personalized Services
Real-Time Capabilities

INDUSTRY MOMENTUM

Intel® Network Builders
Intel® Cloud for All
Trusted Analytics Platform

CLOUD

NETWORK

**Telco Cloud &
Converged
Infrastructure**



NFV & SDN
Definition



Global
Deployments

INTEL TECHNOLOGY INNOVATION

Intel® Xeon®
Intel® 3D XPoint
Intel® Silicon Photonics
FPGA

ARCHITECTURAL INNOVATION

Software Defined Infrastructure
Intel® Rack Scale Design

DIGITAL TRANSFORMATION IS DRIVING DATA CENTER “REDESIGN”

HYPER-CONNECTED WORLD



Deluge of Data



5G Wireless and
Optical Networking



Cloud Processing
and Analytics



50B Connected
Devices

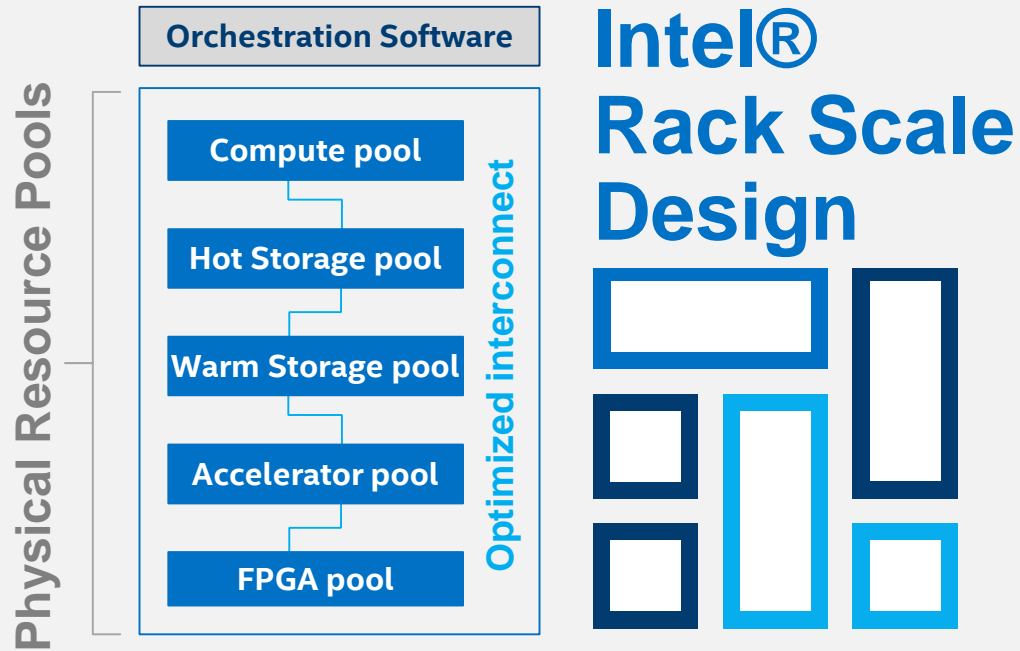
by 2020¹

A new
infrastructure
design is required



1. Source: Intel 2017 Investor Meeting

INTEL® RACK SCALE DESIGN VISION



“A revolutionary, new architecture that fundamentally changes the way a data center is built, managed, and expanded over time”



Increased Performance

- Intel® Xeon® processor
- FPGA
- Intel® Optane™ Storage
- Intel® Silicon Photonics

***Optimized for
Intel® Rack
Scale Design***



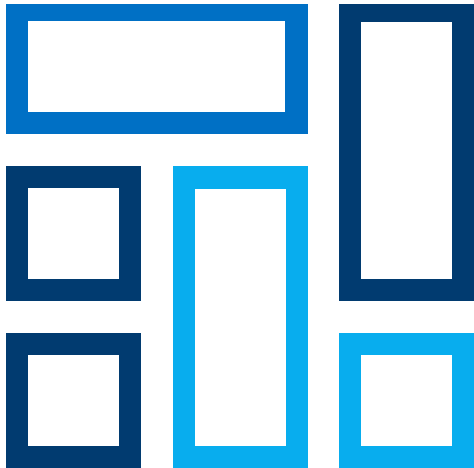
Lower Total Cost of Ownership

- Composable
- Standards-based management
- Buy what you need
- Interoperable
- Eliminates redundant infrastructure*

* Fan, power supply, chassis, cabling, etc.

REVOLUTIONIZING THE DATA CENTER

Intel® Rack Scale Design



FLEXIBLE

Quickly and dynamically configure customized systems to meet your needs



MANAGEABLE

Discover, compose, and monitor resources with powerful, modern API-based software



ECONOMICAL

Buy and upgrade only what you need and when you need it



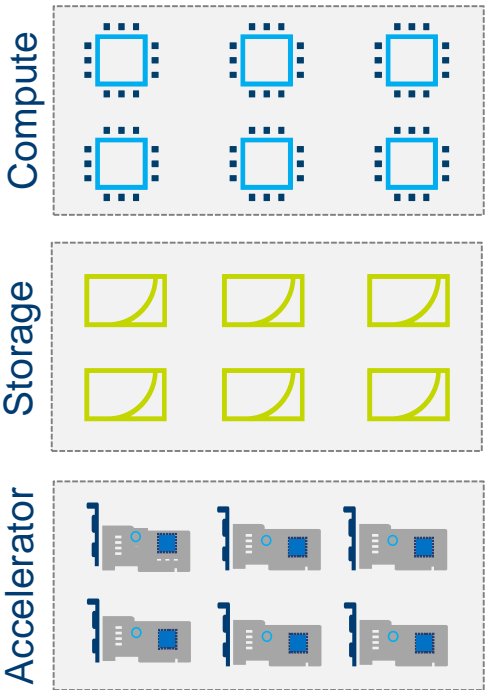
OPEN

Benefit from choice, interoperability, flexibility, and industry-wide innovation

INTEL® RSD IS COMPLEMENTARY TO INDUSTRY STANDARDS

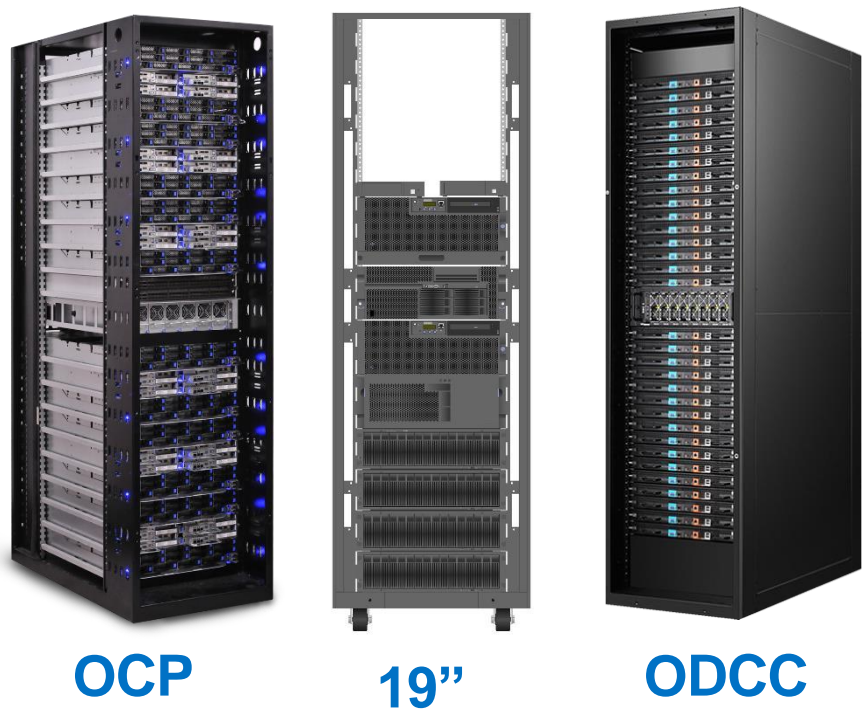
Intel® Rack Scale Design

Open Sourced Software



Physical Architectures

Rack Dimensions, Board FF, Power Delivery



Industry Standards Bodies



INTEL® RSD ALIGNED ECOSYSTEM

Intel® Rack Scale Design supports a wide range of partner solutions

OEMs/ ODMs/TEMs*



ISVs/OSVs*



CANONICAL

vmware®



Industry Initiatives/
Standards*



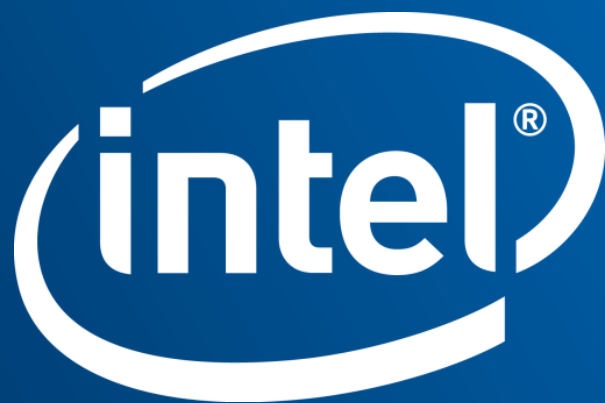
End Users/POCs**



SoftBank

Tencent 腾讯

YAHOO!



> HDS8000 THE 5G CLOUD INFRASTRUCTURE

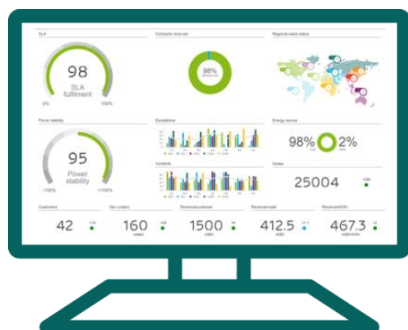
ERICSSON HYPERSCALE DATACENTER SYSTEM 8000



See everything

Become agile

Get lean



Networking



Compute



Accelerators



Disks

Open management and integration with Command Center
of the complete datacenter, Ericsson and 3PP

vPOD, virtual POD

SW defined infrastructure combining components into virtual performance optimized datacenters

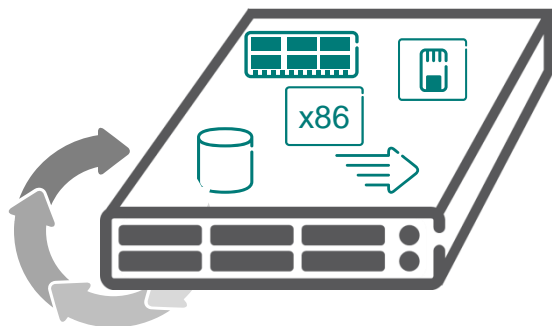
Disaggregated hardware

Seamless scalability with efficient life cycle management

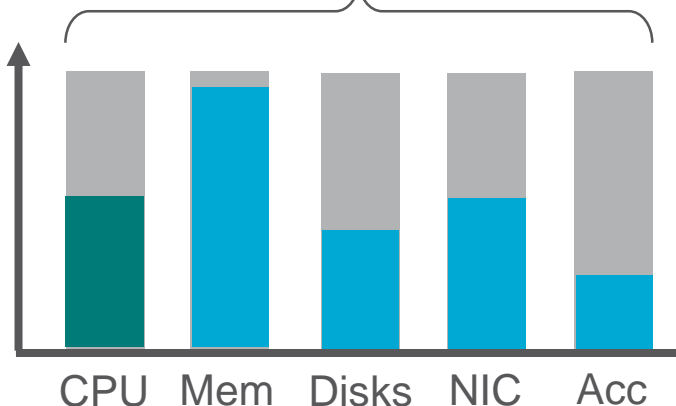
Worlds first Disaggregated DC Solution using Intel Rack Scale Design

HARDWARE DISAGGREGATION

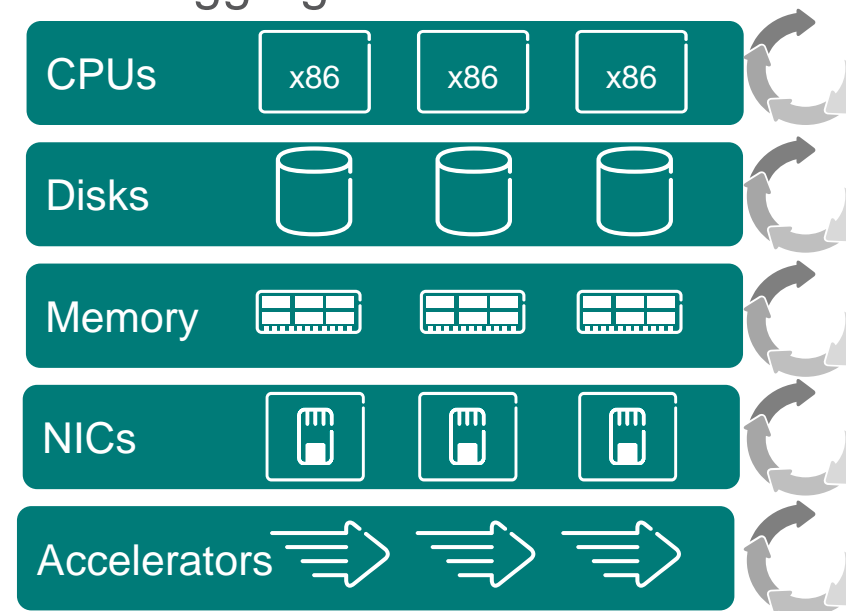
Today's servers



~80% of HW CAPEX & power consumption

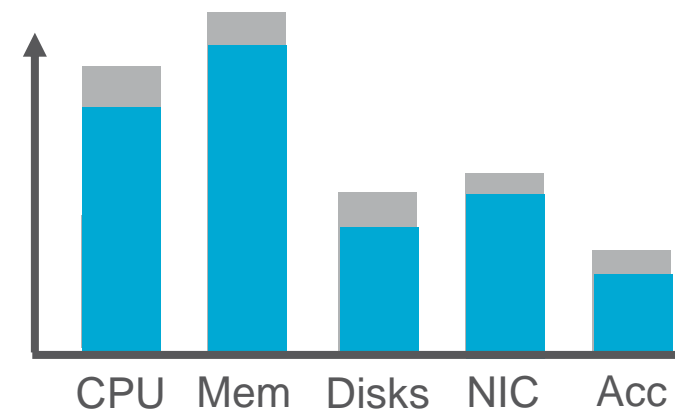


Disaggregated Datacenter



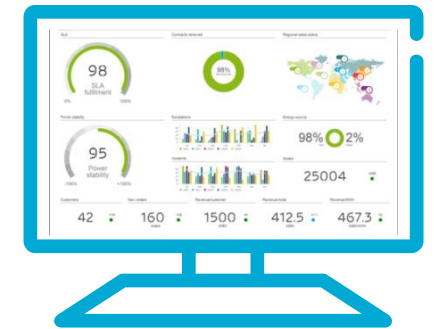
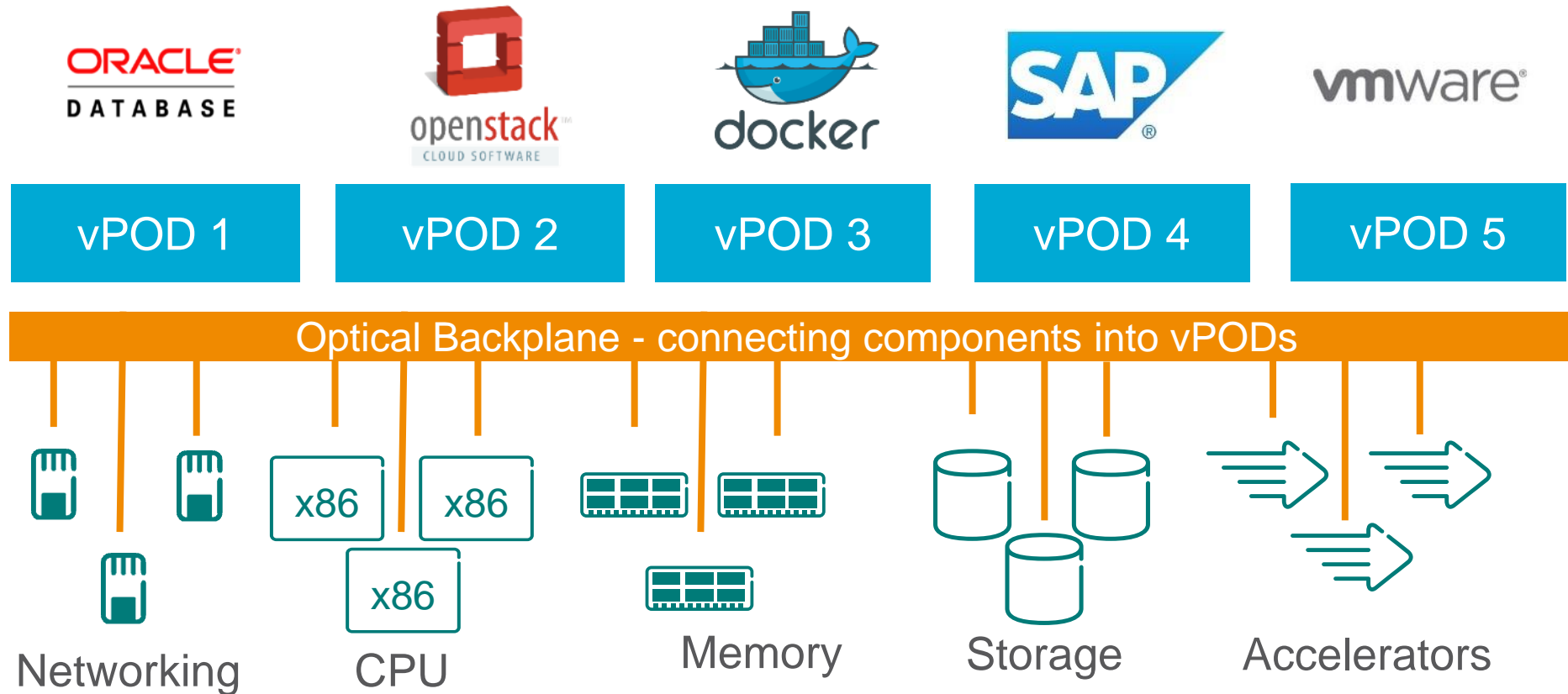
Workload usage

Un-used hardware



VPODs TO MAKE YOU AGILE

One shared infrastructure – All Workloads



E2E Infrastructure
Operation
and Orchestration

Pooled spare capacity, on component level, across all domains.

HDS DC NETWORKING



DC fabric **automation** through single interface



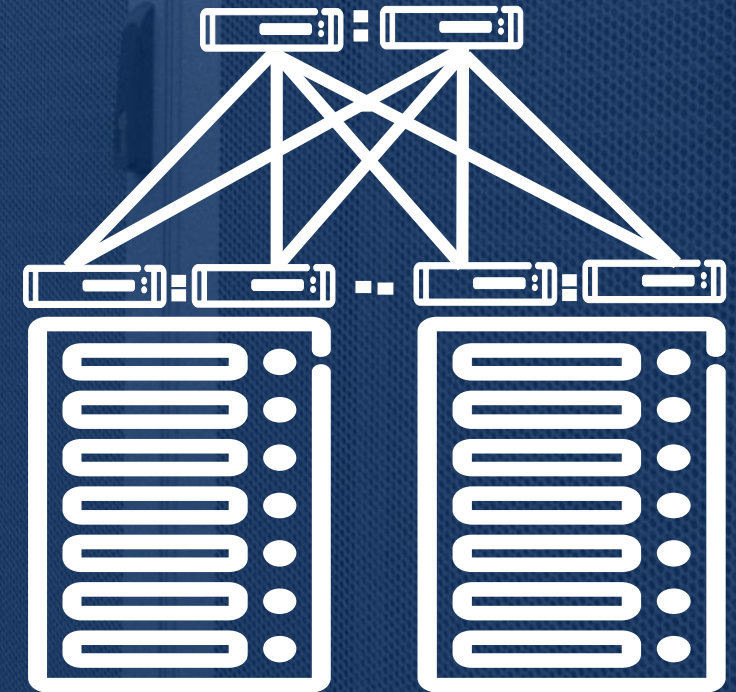
Software defined DC partitioning - vPOD



Industry standard **open** underlay fabric



Industry leading **analytics**



HDS 8000 VALUES - SUMMARY



**Competitive
positioning**



**Time to
market**

- › Fast deployment with vPOD
- › Most up-to-date components by Disaggregation



**OPEX
reduction**

- › One open integration and maintenance system
- › Simplified maintenance with vPOD / Disaggregated HW

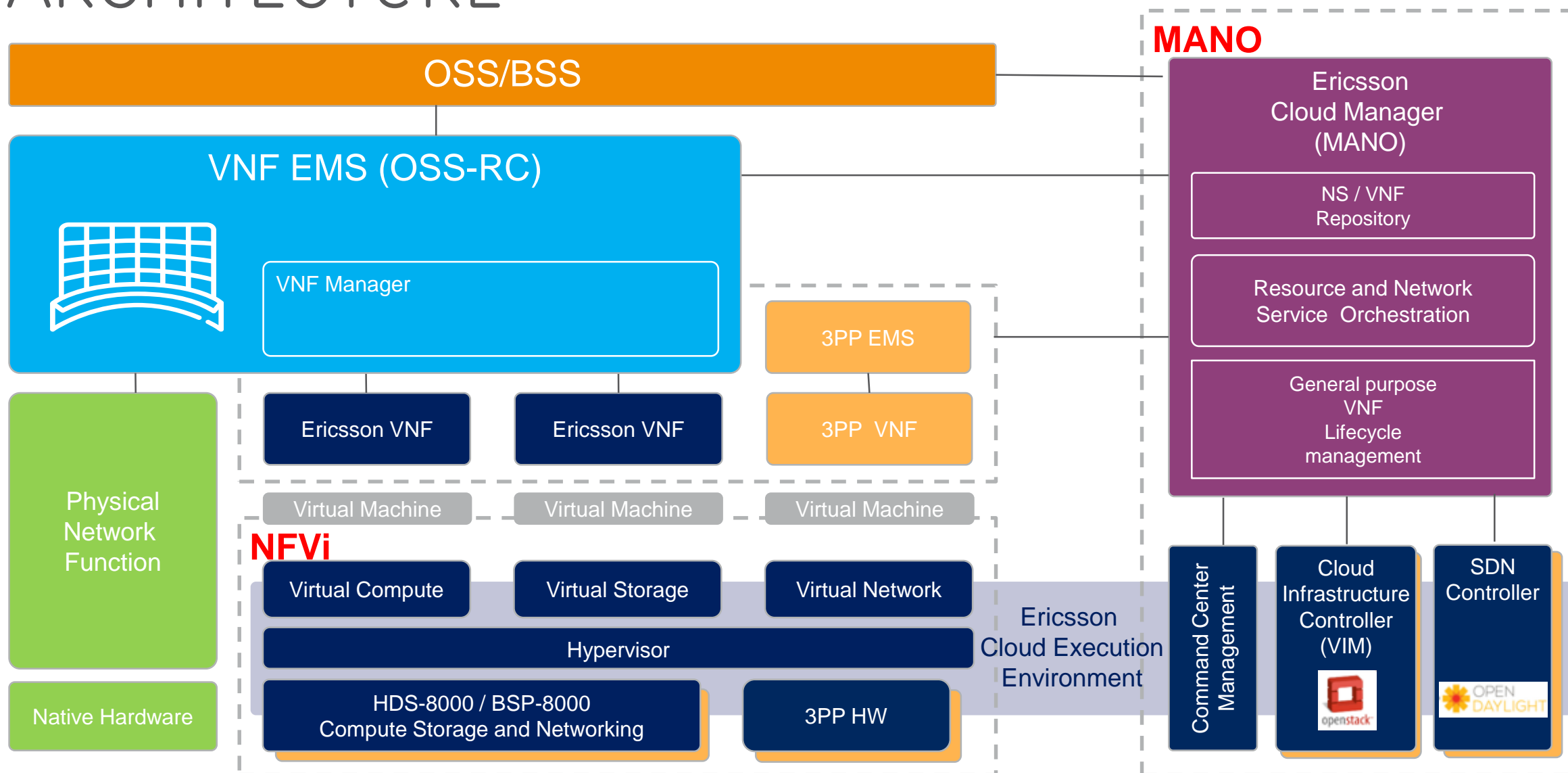


**CAPEX
efficiency**

- › Open platform - freedom to select vendor
- › Optics meeting future storage needs

> CEE FOR 5G NFVI

MEET THE NFVI REFERENCE ARCHITECTURE



CLOUD EXECUTION ENVIRONMENT BENEFITS



Openness - freedom to select vendor

- Open platform - built on open source
- Runs on 3rd party HW

Continuous end-user access to services

- Redundant (3x) Cloud Infrastructure Controller
- High availability with CMHA
- Persistent anti affinity

Cloud Execution Environment

Linux OS /
Hypervisor

Telco grade
OpenStack

High performance

- Accelerated vSwitch
- 15x through put
- Low and predictable latency
- Line-rate performance virtual routers

Unified cloud infrastructure O&M

- Fault and performance management
- Update and rollback
- Backup and restore

Simple and trusted security

- Simplified security administration
- Trusted tenant isolation

10 minute deployment of applications and services

- Automated installation with OVF support
- CEE reference solution – pre tested configurations

CEE VALUES



**Competitive
positioning**

**Increased
revenue**

- › High performance and high availability
- › Trusted tenant isolation



**Time to
market**

- › Rapid service deployment
- › Fast innovation on open platform



**OPEX
reduction**

- › Efficient O&M
- › Simplified security administration

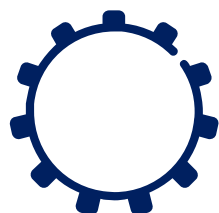


**CAPEX
efficiency**

- › Open platform – freedom to select vendor
- › Fast cloud deployment

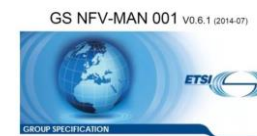
KEY DIFFERENTIATORS - ECM

Single Pane of Glass



- Tenant Portal, Chargeback,
- Multi-DC, multi tenant management
- Integration with OSS/BSS

Open & Flexible



- Compliant with ETSI NFV MANO, OpenStack, ODL, VMware
- Multi Hypervisor Support (VMware, KVM)
- Multi-vendor integration (for VIMs, VNFs, VNFM)

Commercial Deployments

- Currently 3 Live and more than 20 commercial contracts
- Many ongoing PoCs
- Live in several countries
- Award winning product



Advanced MANO features

- Orchestration of physical and virtualized applications
- Monitoring of HW, VIMs, vAPPs
- Policy-driven Automation & Optimization
- L2/L3 networking within/across DC.
- Optimized operations with automation



NFV IN REALITY WITH OPERATORS



Softbank
Mobile Broadband



Digicel
Mobile Broadband



Vodafone, Swisscom & Telefónica
VoLTE & Wi-Fi Calling Overlay



Telstra
Enterprise Slicing



DOCOMO
Multi-vendor NFV



Telefonica UNICA
Multi-vendor cloud-based virtualization

