Rebuilding Communications Networks with NFV & Cloud

Fundamental Transformation for Competitive Positioning

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Oracle In Communications

Dedicated industry organization

R&D, product strategy, sales and services

Deep industry specific

expertise in OSS/BSS, network control, signaling and unified communications

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Communications

Leverage

Oracle technology

Develop/invest/acquire

best of breed technology

SIEBEL PORTAL atg.

METASOLV SOFTWARE acme packet

Sun microsystems bea Tekelec

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3 Messages in This Session

1. NFV & cloud technologies promise a lot to the communications industry
2. But not all promises are completely realized (yet), and the industry is working hard to get you there
3. Selection of vendor(s) is an important criteria in your transformation journey

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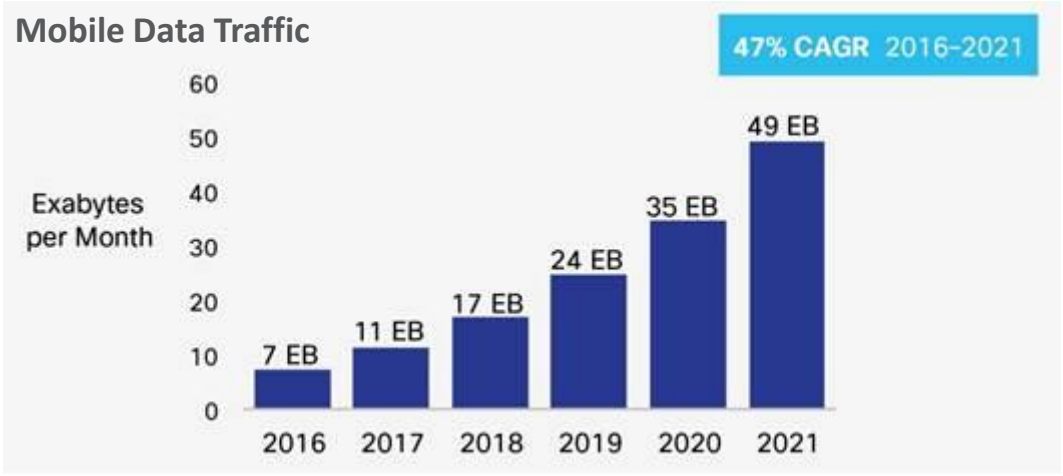
What Service Providers Say…

"**The network we currently have is too expensive**. Facebook's network supports 1.5 billion users and is operated by 15 people. We have to get there, too, through automation. The industry needs to start with a vision of a network that only needs three people to run it." - *Tier 1 North American operator*
-Source: Analysys Mason

"We face competition next year from a new market entrant. It will have no core network, no physical network infrastructure – it will buy/rent spectrum and towers and it will use a **lot of automation**. It will be massively disruptive, not only because of price but because of all the other things it will be able to do because it's agile."- *Tier 1 European operator*
- Source: Analysys Mason



-Source: Cisco VNI Mobile, 2017

- 60% of respondents said that their current OSS/BSS infrastructure lacks capabilities needed to **launch new services in a timely, cost effective manner**.
- 55% said their OSS/BSS is outdated and needs to be updated/overhauled
- Only 16% of respondents said their systems are modern, efficient, and largely adequate.

-Source: MEF, Third Network Lifecycle Service Orchestration (LSO) Survey

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… And What They Want

Increase Business Agility and Digitalization	Rapidly introduce a variety of digital services e.g. IoT, 5G network slicing
Adopt NFV, SDN and Cloud	Incorporate virtualization and automation to deliver elastic services
Improve Operations Efficiency	Leverage the latest technologies and innovative solutions to drive down costs
Deliver on a “2020” Architecture	Increase flexibility and Interaction between IT and Network

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CSPs see NFV and the cloud as their best bet to improve their competitive position.

Opportunity to maintain or improve competitive position:

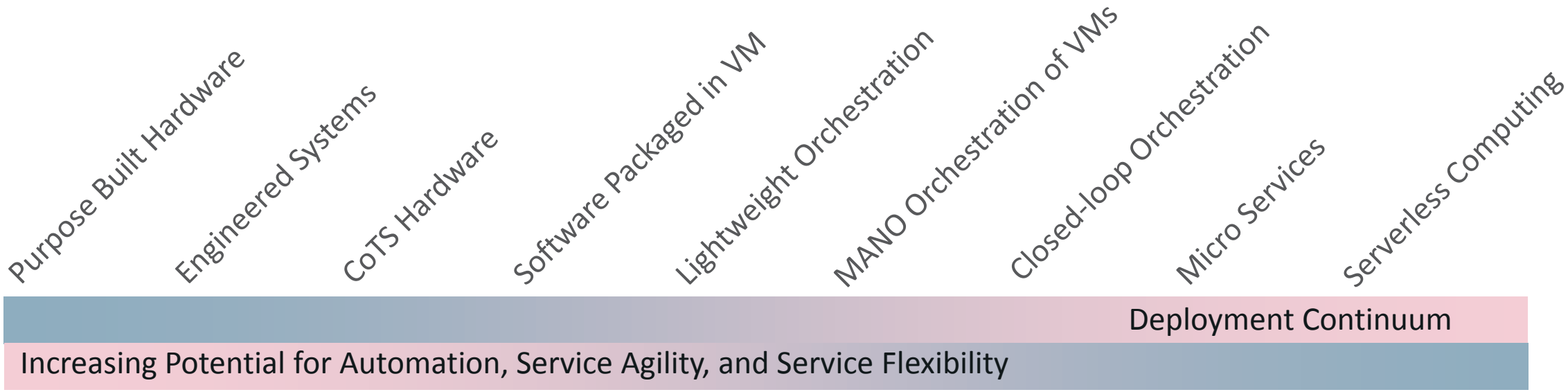
Opportunities	Ranking
Implement an NFV (network function virtualization) architecture	#1
Use a communications cloud service	#2
Use business intelligence and analytics	#3
Invest in omnichannel customer experience	#4
Deploy agile Business Support System platforms	#5

Q9: Please rank the importance of the following potential opportunities for your company to maintain or improve its competitive position (1 = most important opportunity).

VNF Virtualization Continuum

A Range of Deployment Options

- Pushed by agility, cost, and perceived advantage from IT space
- Direct progression to the right is not required or necessary
- Care is needed to manage distribution complexity on the right



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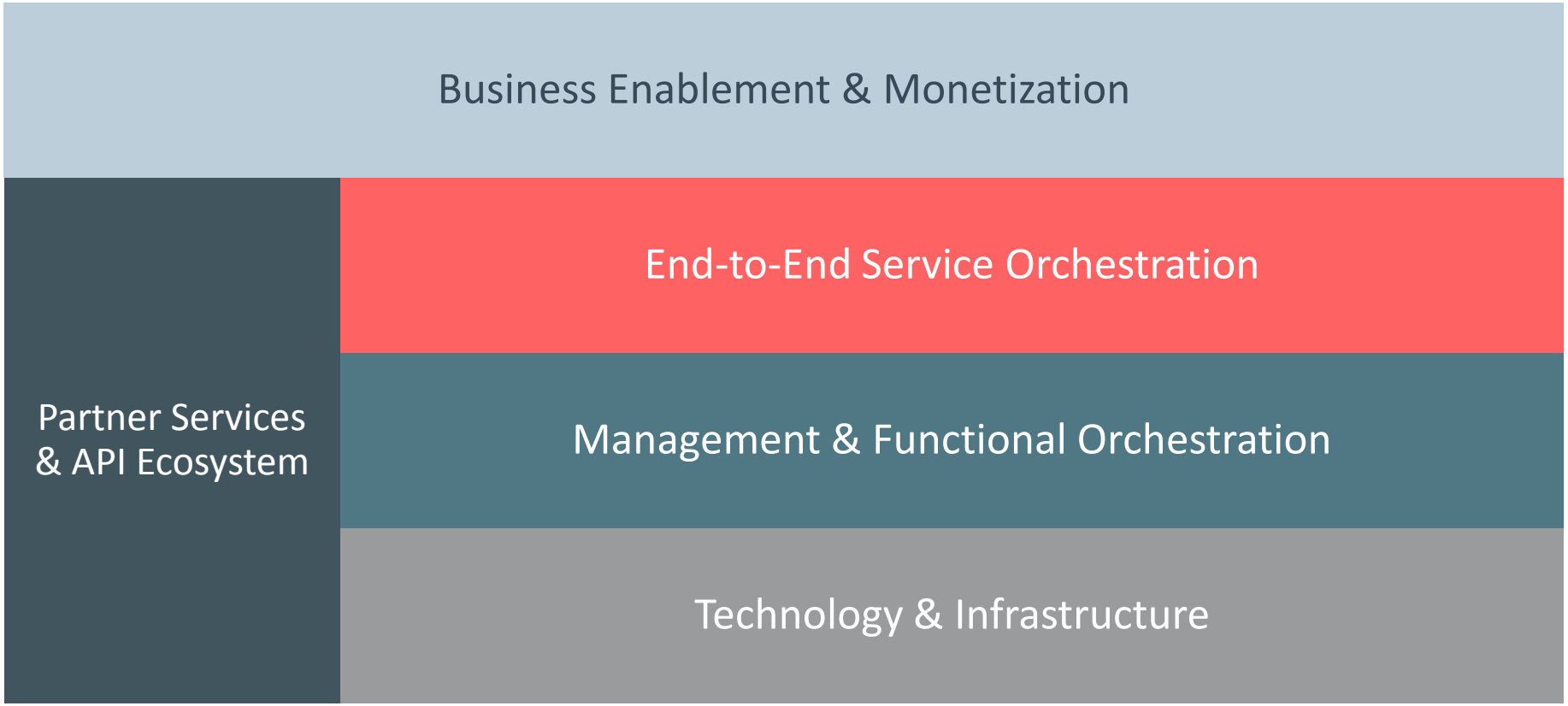
Culminating in the Communications Cloud



A complete cloud-centric network architecture consists of several distinct layers that encompass technology to business including support for partner ecosystems.

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Journey to Communications Cloud

Open, Virtualized Software

- Hardware Agnostic
- Flexible Deployment
- Reliable and Scalable
- Cost Reduction

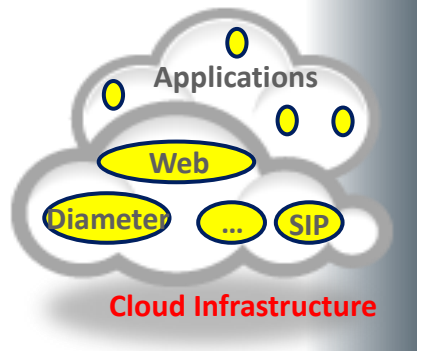
Network Function Virtualization

- NFV Compliance
- Automated Deployments
- Programmability
- Deploy in CSP DCs

NFV

Evolve to Full Cloud

- Orchestration
- Choreography
- Cloud APIs
- Big Data/Analytics



Reduce Network Service Cost

- Customer choice of HW and/or SW
- Flexible commercial platform options
- Benchmark reliability, scalability, and performance

Orchestrated

- VNF integration into Oracle or 3rd Party MANO (i.e. ONAP, Open Source Mano/OSM, Tacker)
- Significantly reduce deployment & upgrade time & complexity
- Improve Service Agility via automation

Communications Cloud

- Convergence of technology across IT and Network Domains
- Offer extreme Service Agility
- Consolidated or Distributed deployment flexibility
- Rapid & Custom Application Development
- Cloud APIs

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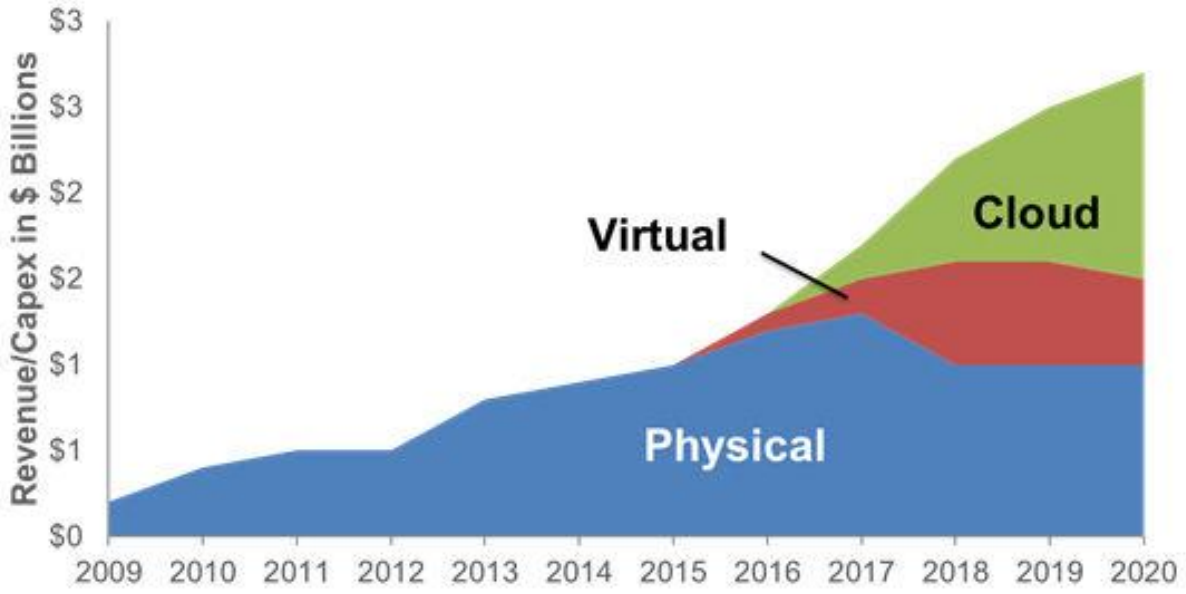
Analyst View of Future of Communications Networks

- NFV is fundamental to providing the scale, flexibility, and economics needed to compete in plateauing voice revenues
- NFV enables cloud migration of services and brings more innovation opportunities
- Last remaining challenges to adopting NFV, such is, security, encryption, and media processing, are being solved



Source: Exact Ventures, June 2016

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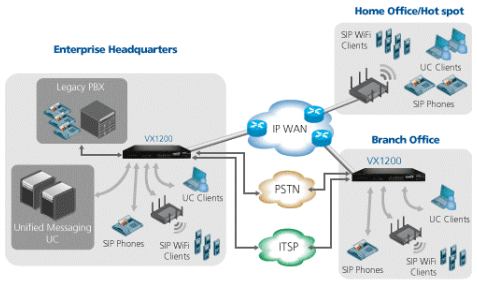
NFV Technology: Is it Mature Enough?

Traditional Physical Model

Example

- Discuss licensing, contracts, SLA with procurement
- Bring trial hardware to the lab
- Setup, configure, connect, etc
- Discuss with Ops/IT how to collect PM, FM, etc
- Spend weeks or months testing & learning
- Prepare Ops, allocate space in COs
- Ship & install hardware

OSS/BSS



Managed Service

Virtualized Model

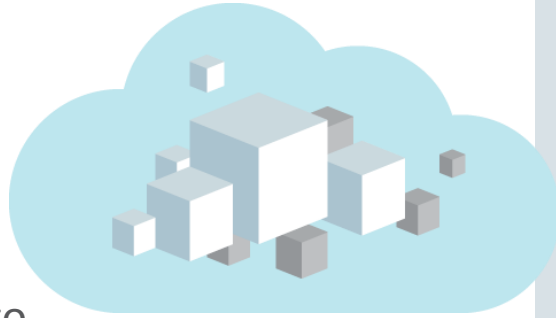
Example

- Verify VNF capabilities
- Review/accept/purchase VNF license & contract
- Download VNF package
- Validate package content
- Test basic functions MANO, performance, and Security
- How to connect to PM? FM?
- How to integrate to rest of fulfillment stack from Products to Resources, to Services?
- How will CSPs get this info from suppliers?

Marketplace / Supplier website

OSS/BSS

MANO



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Industry Effort to Make NFV Vision a Reality

- Focused on automating and simplifying the VNF Onboarding process
- Defining standard metadata, metrics, and software patterns
- Leveraging and contributing back to Multi-SDOs

2017 Catalyst Members

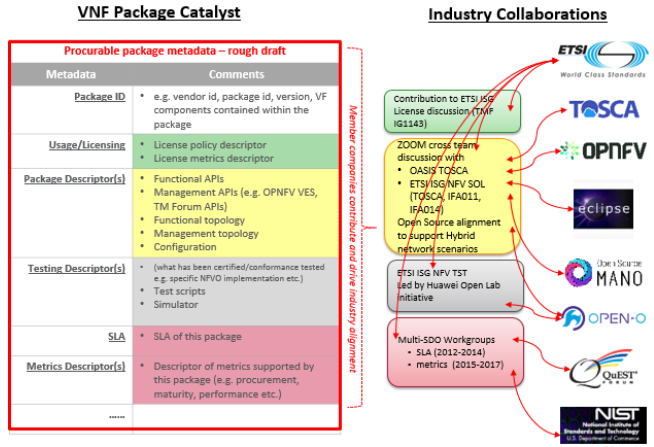
Champions

AT&T, orange, TELSTRA, verizon, 中国移动通信 CHINA MOBILE, vodafone

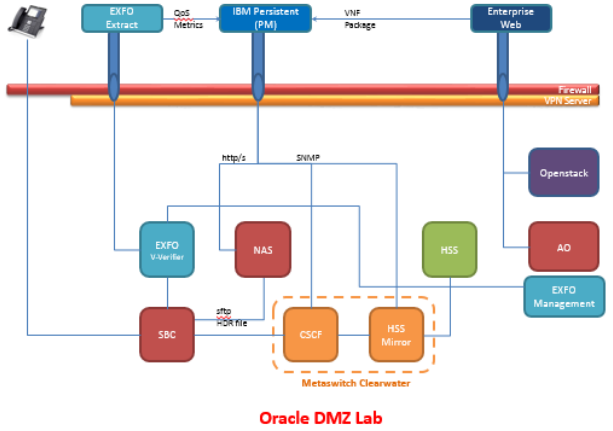
Participants

ORACLE, metaswitch, EXFO, IBM, EnterpriseWeb A Platform for Transformation, PERSISTENT Partners in Innovation

Well-Enabled VNF Package



TMF Live!17 Architecture



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Three Strategies for Building a Communications Network

- **High Performance Purpose-Built Platform Based**
  - Build on your existing network
  - Get predictable, dependable performance
  - Avoid uncertainty and lack of standardization
  - But select your elements wisely so you can reuse them once you move to NFV
- **Virtualized & Cloud Oriented**
  - Be on the cutting edge of innovation
  - Build your next generation network from the ground up
  - However, be ready to accept risks associated with evolving technology
  - Choose a vendor whose experience spans telecom, virtualization, and cloud
- **Managed or Hosted by 3rd Party**
  - Sidestep complexity and embrace a tested and proven solution
  - Lower your CapEx and OpEx
    - linear scaling ensures pay-as-you-go approach
  - However, be ready to cede controls of your network to someone else
  - Choose a reliable vendor with well-tested components

Conclusion: Given the pros and cons for all three approaches, there's no one right answer for everyone.

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CSPs see quality and cost as table-stakes but expect much more from their cloud vendors.

Q18: Please rank the following criteria when selecting a communications cloud vendor (1 = most important).

#1 Quality

(Capabilities, scalability, performance, reliability)

#2 Reduce Cost

(CapEx, OpEx, TCO)

#3 Reduce Risk

(Security, privacy, regulatory)

#4 Connectivity

(APIs, integration, interoperability, ecosystem)

#5 Simplification

(Saves time, reduces effort, avoids hassles)

#6 Vision

(Roadmap, story, leadership, innovation)

Why Oracle?

- The Oracle Advantage
  - Comprehensive portfolio of PNFs, VNFs, and orchestration functions
  - Deep telecom expertise, cloud leadership, and IT skills
  - Trusted partner in your network's NFV transformation
- To learn how Oracle can be your trusted partner on the path to NFV transformation, visit https://www.oracle.com/goto/NFV

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Oracle Cloud Leadership

ORACLE CLOUD

19 Data Centers serving **195+** Countries

680... SaaS Application Offerings

17+ years Managing Enterprise Clouds

75%+ of Fortune 100 Run Oracle Cloud

98M+ Users/Day

45B+ Transactions/Day

39+ PaaS + IaaS Cloud Services

9M+ Developers Worldwide

19 of 20 Top Cloud Providers Run on Oracle

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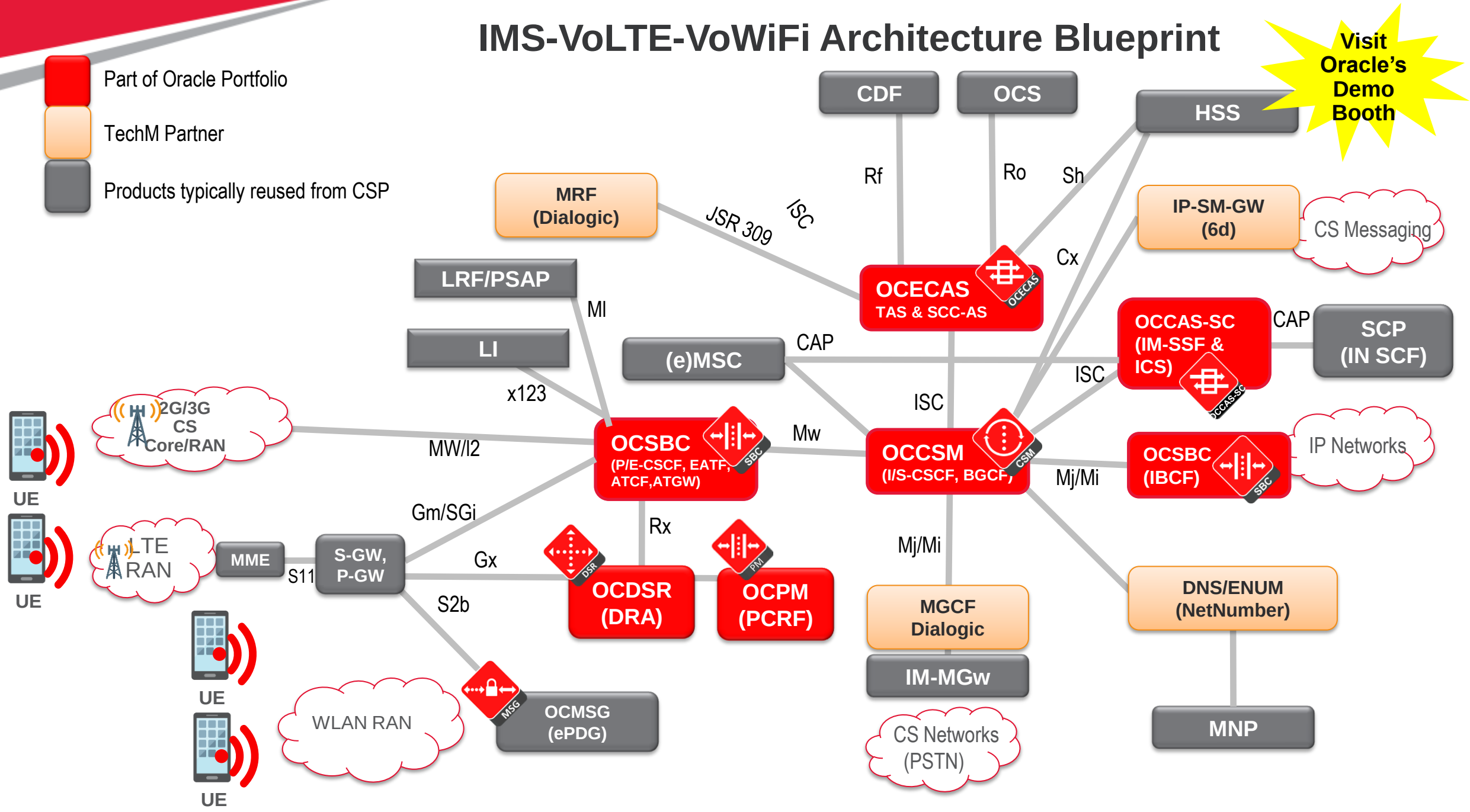
IMS-VoLTE-VoWiFi Architecture Blueprint



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