Tomorrow’s Cloud Starts Today
Driving the Data Center Infrastructure for the Next Decade

Kirk Skaugen
Vice President, General Manager
Data Center Group
Today’s Announcements

Cloud 2015 Vision

Open Data Center Alliance

Intel® Cloud Builders Program
Total Data Crossing the Internet

150,000,000,000,000,000,000,000 Bytes*
Through 2009

175,000,000,000,000,000,000,000 Bytes*
In 2010 Alone

*Exabytes

Source: http://www.cisco.com/assets/cdc_content_elements/networking_solutions/service_provider/visual_networking_ip_traffic_chart.html
By 2015...

More Users

>1 Billion More
Netizen’s

More Devices

>15 Billion
Connected Devices

More Data

>1 Zetabyte
Internet Traffic

1. IDC “Server Workloads Forecast” 2009
2. IDC “The Internet Reaches Late Adolescence” Dec 2009, extrapolation by Intel for 2015
3. IDC “Worldwide Device Estimates Year 2020 - Intel One Smart Network Work” forecast
4. Source: http://www.cisco.com/assets/cdc_content_elements/networking_solutions/service_provider/visual_networking_ip_traffic_chart.htm
   extrapolated to 2015
Is the Infrastructure Ready?

In The Last 5 Years Alone:

20x Performance/Watt

Half The Platform Idle Power

15:1 Consolidation

We Have Made Tremendous Progress...
Infrastructure Must Evolve to Address IT Challenges

Security

IDC
Analyze the Future

70% of Respondents Saying Security is Top Concern In Moving to Public Cloud¹

Manageability

Bain & Company

IT will spend ~$2T on deployment & operations thru 2015 unless smarter infrastructure radically simplifies management of virtualized environments.

Efficiency

Today’s Technology Would Require Building 45 New Coal Power Plants to Support 2015 IT Infrastructure²

Lock-In

The 451 Group
August 2010

“We have seen lock-in return as a top concern....routine seeking alternatives to proprietary virtualization and cloud computing technology”

¹ IDC Market Analysis, January 2010.
² Source: information in backup
* Other names and brands may be claimed as the property of others.
We’ve Helped Transform Industries

Annual Server Unit Shipments

- 1990: DX2
- 2000: Xeon

Supercomputing

- >500 TFLOPS
- ~$55K/GFLOP
- <$100/GFlop

Performance

$/GFLOP
The Compute Model Evolution

Researchers
Mainframes

Many
Client/Server
Web

Ubiquitous

Pervasive
Cloud Architecture

Intel
Cloud Computing Can Once Again Transform the Economics of Computing & Services

- Save $25B of IT Spend in 2015
- Accelerate $100B of Industry Services through 2015
- Save 45 Giga Watts in 2015
Introducing: Cloud 2015 Vision

**FEDERATED**
Share data securely across public and private clouds

**AUTOMATED**
IT can focus more on innovation and less on management

**CLIENT AWARE**
Optimizing services based on device capability

- Desktops
- Laptops
- Netbooks
- Personal Devices
- Smartphones
- Smart TVs
- Embedded
Catalyst for Change

Open & Interoperable Solutions Essential
Marvin Wheeler
Chief Strategy Officer

Curt Aubley
VP & CTO Cyber Security & NexGen Innovation
OPEN DATA CENTER ALLIANCE
WE ARE AT AN INFLECTION POINT

IT Complexity Growing
Speed of Change Accelerating
Corp Budgets Under Pressure

We must improve efficiency & capability of infrastructure to meet our requirements

The need for interoperable solutions has never been greater

• Keep organizational budgets in check
• Enable integration of new technology innovation within existing deployments
• Avoid silo data center pools that could block the full realization of cloud benefits
Enable delivery of cloud and data center solutions that meet the challenges facing data centers today and tomorrow, support solution development in an open, industry-standard and multi-vendor fashion, and aid in deploying solutions through member usage of the Alliance roadmap.

Create
Unified voice for data center requirements

Deliver
Requirements roadmap to and with industry

Commit
Roadmap to guide internal IT deployments
FOUNDING MEMBERS

Steering Committee

Member Companies

Over 70 members across the globe
GLOBAL IT INFRASTRUCTURE SERVICES

- Presence in 4 continents
- 12 data centers
- 160 Global service carriers
- Gold Winner of Best of VMworld 2010 Award in Public/Hybrid Cloud Computing Technologies
GLOBAL IT INFRASTRUCTURE SERVICES

Top Challenges:
• Provide federated, interoperable and secure solutions to customers
• Aggregate massive amounts of processing power into a condensed and dense footprint
• Plan for the multi-hundred watts/sq. ft. data center

Reasons to Join Open Data Center Alliance
• Success-based budgeting
• Power in numbers
• Deep, meaningful technical dives

Help our customers focus on their core business
CURT AUBLEY
VP & CTO Cyber Security & NexGen Innovation

LOCKHEED MARTIN

OPEN DATA CENTER ALLIANCE
GLOBAL SECURITY AND IT COMPANY

- 133,000 people worldwide
- $44 billion in 2009 sales
- 2500 Programs
- #1 provider of Information Technology for the U.S. federal government for 16 years

(Washington Technology magazine)
Top Challenges:
• Increasing agility and affordability
• Improving energy efficiency
• Providing customers secure performance and scalability for mission success

Together Driving
• Helping our customers with innovation options
• Drive interoperability, scalability, & efficiencies
• Enhance future cyber security capabilities
### ALLIANCE USAGE MODEL ROADMAP

**DETAILED REQUIREMENTS FOR DEPLOYMENT**

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**Focus:**
- Long-term commitment with multi-year Roadmap.

**Development:**
- 19 prioritized usage models culled from dozens of potential targets.

**Delivery:**
- Workgroup development underway
- Membership to approve 1.0 in Q1’11
ENGAGING WITH THE INDUSTRY
MAKING OUR ROADMAP REQUIREMENTS A REALITY

Roles
Vendors have an important role in the Alliance

Focus
Workgroups drive vendor engagements and establish liaisons with complimentary industry orgs

Discussion
The Alliance will encourage healthy industry debate on Roadmap in a vendor-agnostic fashion.

Finalization
Alliance members will vote their approval of the Roadmap and Usage Models.
WHAT'S NEXT

All timeframes, dates and products subject to change without notice.

**Q4’10**
- .5 Roadmap at workgroups
- Vendor Engagement initiated

**Q1’11**
- .9 Roadmap membership review
- 1.0 Roadmap (includes initial usage model release)

**Future**
- Additional usage model delivery
- Roadmap Enhancements

**Alliance Documents**
- Public Roadmap Review

**Webcasts**
- Members Services WG
- Members Management WG
- Members Security WG
- Members Infrastructure WG
- Members Govt/Eco WG

**Future Member Comms**

**Alliance Steering Committee & Technical Workgroup Meetings**

**Join the Alliance:** apply for membership at www.opendatacenteralliance.org
Intel: Addressing Alliance Requirements

**IT & Service Providers**
Define and Prioritize IT Requirements

**Products & Technologies**
Enable New Capabilities In Intel Platforms

**Intel® Cloud Builders**
Collaborate and Publish Proven Reference Solutions
Intel® Cloud Builders: Proven Solutions

20 Reference Architectures Available Today: Intel.com/cloudbuilders

Joyent SmartDataCenter*
Microsoft System Center VM Manager Self-Service Portal 2.0*
Novell* Cloud Manager
Parallels* Elastic IT Solution Developer Cloud
Red Hat Cloud Foundations*
Ubuntu Enterprise Cloud*
Univa UD*
VMware VCloud* Director

Coming Soon:

* Other names and brands may be claimed as the property of others.
Summary

Cloud 2015 Vision: Federated, Automated, Client Aware
The Journey Starts Today

Open Data Center Alliance:
Prioritizing IT Requirements for Open, Interoperable Cloud Solutions

Intel® Cloud Builders:
Validated Cloud Solutions From Industry Leaders