The Unique Value of Avaya Data Networking

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Global GM, Avaya Data Solutions

Portfolio & Roadmap Overview
Agenda

1. ADS: Focusing on Data Solutions
2. The Requirements of Data Networks
3. Unique Value of Avaya Data Networking
4. Avaya Data Product Lines
5. Strategies & Roadmaps
Building A Premier Networking Provider

- Deliver a clear message to the market about the direction and health of the business
- Renewed focus on telling the data networking story
- Establish new standards for resiliency, efficiency and scalability
- Consistency in the message, value proposition, and that Avaya is serious about data
Is Avaya really committed to Data Solutions?


Avaya promises a fight on networking

“We are absolutely investing in the data business; it is a key part of our portfolio and we are not going to shy away from the battles,” said Abbot. ”We want to win and compete in the data business, make no mistake about it.”

IDC:

“Data networking: Avaya reaffirmed its commitment to the $30 billion data networking market by bringing to market a full portfolio of products it acquired from Nortel Enterprise Solutions. Avaya plans to support an end-to-end solution set of products. The company has plans to leverage the Avaya relationships to grow customer and reseller base as well as launch an independent data networking overlay sales force. Most importantly, the company will incent the Avaya sales force on only the Avaya branded products.”

Current Analysis:

“... This provides Avaya with a full voice and data portfolio that most of its main rivals (Cisco, Alcatel-Lucent, Siemens Enterprise and 3Com) already possess. It should also help Avaya to rely less on partners (HP and Juniper) for the delivery of solutions that combine both voice and data product sets or otherwise deliver an end-to-end solution.”
Avaya Data Solutions

- Sales teams compensated only on Avaya Data portfolio
- Created a senior data consulting engineering/sales organization
- One of two companies that can provide the total end to end solution
- March to a Billion
What IT Executives Say

Gartner has surveyed Enterprises on their top priorities:

1. 24x7 Availability
2. Business Continuity & Disaster Recovery
3. Cost Reduction &/or Cost Management
4. Demonstrating Business Value
5. Increasing Rates of Change & Pressure to Move Faster
6. Data Center Space & Power & Cooling
7. Modifying for Virtualization
8. Defining Business-Orientated IT Services & SLAs
Strategy & Vision

Intelligent network Solutions Provider focussed on solving Customer data explosion, cost, & mobility challenges

The 3 Network Imperatives for Plug & Play Communications

- Always-On
- Efficient
- Scalable

PLUG & PLAY COMMUNICATIONS
Avaya’s Unique Value Proposition

Always-On
Intelligent components & designs, powerful networking that can be fully trusted to deliver
- Up to 7X better resiliency
- 100% Call Completion even during failure scenarios
- In-Service Maintenance

Efficient
Improving the effectiveness of a business by creating a simpler & more effective network
- Up to 50% better TCO
- Up to 40% more energy-efficient
- Pioneered best-practice design, saving 1/3 equipment

Scalable
Leveraging optimization & organic versatility to meet Business-driven Data growth requirements
- Up to 20X better performance
- Satisfying Business growth – scaling from 1G to 100G
- Virtualized & integrated
The Markets We Serve – Data Networking

Ethernet Switching  Wireless Networking  Unified Branch  Access Control  Unified Management

Enterprise Campus  Branch & Remote  Data Center

Continuing aggressive investment in the Portfolio
Ethernet Switches

Stacking Capacity (1)

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<th>HP Procurve</th>
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<th>Cisco CAT3750</th>
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| Avaya ERS2500 | Low Cost Solution for Branch Offices |
| Avaya ERS4500 | Mid Tier Switch With Models for Small to Medium Enterprises |
| Avaya ERS5000 | Premium Stackable Switch – Excellent Cost Effective Alternate Core |

| Avaya ERS5600 | Premium Stackable Switch – Excellent Cost Effective Alternate Core |

**Stackable**

**Modular**

**ERS 2500**

**ERS 4500**

**ERS 5000**

**ERS 8300**

**ERS 8600**

**VSP9000**

Only vendor to provide multiple options to enable IPVPN
Best in class resiliency mode
Uses up to 40% less energy than Cisco
Highly successful in Tier 1 Enterprise – Loyal global customers

Highest capacity of 27Tbps with mid-plane architecture
Uninterrupted Services Architecture – Zero loss forwarding on SF failure
Growth protection with high density 10GIG and 40/100GIG ready
Leverages ERS8600 Software architecture

**Functionality**

Avaya offers a complete end to end portfolio of stackable and modular switches that are high performing, 4 – 7X more resilient and have up to 40% lower TCO than competing products

**Source:** Avaya reporting, Tolly group reports

Note: (1) Avaya analysis
Unified Branch Solution

Unified Branch Office Solutions
Unified communication ready platform
- FW – IDS – Enterprise class routing, Ethernet without PoE, FXO / FXS, WAN
Uniquely integrates with Microsoft OCS service and SCS (SR4134) and SIP Survivability solutions (SR4134 / SR2330)

2X to 6X times more throughput than comparable Cisco products

Small – Mid Branch Access

SR1000 Series
Targets Branch Offices and SMBs

SR2300
Mid Tier Converged Branch Routers

SR4134
High End Converged Branch Routers

SR3120
Targets Branch Offices and Enterprises and Service Providers

Mid Branch to Campus

Enterprise Core WAN

SR8000 Series
High end Enterprise Core Routers

Outperforms comparable Cisco 2821 routers delivering more than 4X the throughput

Avaya’s Unified Branch Solutions match Cisco’s ability to enable UC / VoIP (1)

Source: (1) Avaya reporting, Tolly group reports
Access Control and Unified Management

Access Control – Wired, Wireless and Remote

Ignition Server™
Identity and policy-based authentication and authorization server

Ignition Posture Module™
Posture integration with XSupplicant

Ignition Analytics™
Integrated reporting solution

Ignition Guest Manager™
J2EE-based extensible and customizable visitor solution

Highlights
- Endpoint security innovation
- End-to-end integrated security
- Open, Standards-based approach
- Device-agnostic
- Health scans across LAN and VPN
- Award-winning security solutions
- IPSEC and SSL VPN integrated solutions

Identity Engines

Appliance (3050/3070)

Identity Engines

VPN Gateway 3070

SNAS 4070

VPN Gateway 3050

SNAS 4050

Unified Management (NMOS)

Avaya delivers a consistent and holistic network management solution to configure, provision and manage the Converged Enterprise Networks

Source: Avaya reporting, Tolly group reports

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**2nd Generation Energy-Efficiency – Lower TCO for Enterprise**

*Without Compromising Business Continuity*

- **Efficient by Design**
  - Reducing Campus layers and devices
  - Data Products driving up to 40% more efficiency than rivals
  - Consolidated Unified Branch also reduces equipment levels, optimizes performance and also streamlines management

- **Why is EE 2.0 important?**
  - Green IT is a priority for all organizations globally
  - 40%+ energy savings, in excess of 60% with the new EE 2.0 model, can represents millions in utility savings
  - Always-ON means keeping ALL services active
  - Avaya technology doesn’t require port shut down to save energy
  - Provides clear visibility of the energy your infrastructure consumes

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![Diagram](image-url)
### Demand Characteristics & Solutions

#### Market Drivers
- **Enterprise Virtualization & Consolidation reducing TCO**
  - Virtualization of computing & network resources
    - Cloud Computing & Business continuity
    - IT-less Branch office
- **Explosion of Data Rates**
  - Exponential & unpredictable growth
  - Gigabit transitioning to 100G
- **Mobile Workforce**
  - Globalization of workforce
  - Consistent service expectation & growth of 3G/4G dual-mode devices
  - WLAN alternative to Wired connectivity
- **Demand for Non-Stop operations**
  - IT budget reductions
  - Critical business services continuity

#### Avaya Solutions
- **Campus, DC & UC Branch solutions**
  - Lowest TCO, Green IT, optimized efficiency by reducing layers & devices
  - Virtualization innovation, matching the evolution in computing virtualization
  - UC Branch Survivability (SIP) with integrated network services
- **Growing to 100G at the right cost**
  - No forklift required to grow with business needs data growth
  - Grow data rates & bandwidth without interrupting business services
- **Integrated Wireless solutions**
  - Integrated data forwarding in Ethernet Core switching
  - High performance delivery focused on next generation 802.11n
  - Reduced TCO by decoupling controller & forwarding functions
- **Always-On Networking**
  - Highly-resilient ToR & Core solutions & interoperability with VMware, Hyper-V, iSCSI
  - Bandwidth growth & best-in-class resiliency model
Campus Strategy – 3 to 5 Year Outlook

- Deliver **Always-On Business Services** with better than sub-second (milliseconds) failover & recovery, & elimination of maintenance windows & downtime
  - Maintain leadership in **Active/Active** resiliency model at all layers
  - Maintain leadership in network design efficiency & energy efficiency for a **Greener IT**
  - Meet business **data growth rate** requirements without fork lifting the equipment and leverage the **Always-On** model to make add/moves/changes without any business interruption

- Focus on **Network Virtualization** solutions while providing innovative alternative solutions to meet Enterprise business needs
  - Plug & Play adaptation of Network resources tied to Computing & storage virtualization solutions

- Provide a path forward to the **Authenticated Network Architecture** for Network Access Control
  - Secured connections with fine-grained controls for improved compliance
  - Centralized control for Wired, Wireless, & Remote Users

- Deliver the **Unwired Enterprise** vision & strategy (802.11n)
  - Integrate data path forwarding to meet performance requirements
  - Transition away from overlay WLAN model

**Providing a reliable, scalable, & manageable Always-On network infrastructure**
Switch Clustering – Virtualizing the Campus Core

- Delivers end-to-end application availability
  - Extends to Servers, etc.
- Solutions that scale Enterprise-wide
  - Cost-effective for every network size
- Greatly simplified hardware, software, configuration and maintenance solution
  - Simple to deploy, less complexity and expense
- Industry-leading sub-second failover and recovery
  - Delivers availability and in-service maintenance

- Why Switch Clustering?
  - Unique Best in class Resiliency Model Active / Active
  - Most flexible and adaptable design architecture – from small to very large
  - Simplicity without compromising scalability
  - Lower TCO
  - Seven years of experience with thousands of production deployments

Resiliency: “Active / Active”
Wireless LAN Architectures

- **Disparate Networks**
  - Wired & Wireless
- **Centralized Architecture**
  - Thin Access Points
  - Centralized dual-function Wireless Controller
    - Control Point (control traffic)
    - Switching Point (data traffic)
- **Challenges**
  - Inefficiencies
  - Hardware non-optimized
  - Limitations in scalability

![Diagram of Wireless LAN Architectures](image)

- **Efficiency**
  - Efficiency of Split-Plane
  - 'Ideal' Efficiency
  - Actual Efficiency

- **Scalability**
  - Cost
  - Efficiency

- **Split-Plane Wireless**
- **Classic Wireless**
Next Generation Mobility – WLAN 802.11n Split-Plane Architecture

**Today’s Model**
- Adding control and data capacity at fixed proportions as network grows
- Appliances / Blades performing two different functions

**Next Generation Model**
- Add only what is needed, when it’s needed
- Platform optimized to function

Virtualized WCP (S/W Only)

Integrated WSP on Avaya Unified Switches (S/W Upgrade for Core)

More Efficient Scaling – Fewer Network Elements Lower Costs: CAPEX and OPEX
Enterprise Campus

Today
- Switch Clustering Topology
- Zero Touch IP Telephony Deployment
- PoE at the Edge
- Energy Efficiency 1.0 (NEEC tool)
- TCO Advantages (LANCAT tool)
- 3rd Party Interoperability
- WLAN overlay with 2300 Series
- Wireless VoIP and Location Services
- Secure Network Access
- Network Access Control – 802.1X
- Unification of Access Control

Future
- VSP 9000 10 Gigabit Core
- Energy Efficiency 2.0 (Energy Saver)
- PoE+ Capabilities – Stackables
- Network Virtualization – Shortest Path Bridging
- Integrated WLAN Data Plane Forwarding
- 40 Gigabit and 100 Gigabit Capabilities
- Next Gen Wireless (WLAN 8100)
- High Bandwidth Capabilities
- Microsoft NAP Integration
- Enhanced Security/Policy Management
- Application VPNs
- Embedded Encryption
Data Center Strategy – 3 to 5 Year Outlook

- Deliver **Always-On Applications Services Access** with better than sub-second (milliseconds) failover & recovery, and elimination of maintenance windows
  - Maintain leadership in **Active/Active** resiliency model at all layers
  - Deliver hitless patching and software update capabilities for zero-impact applications access
  - Maintain leadership in network design efficiency & energy efficiency for a **Greener IT**

- Focus on **Network Virtualization** solutions while providing innovative alternative solutions to meet Enterprise business needs
  - **Plug and Play adaptation of Network resources** tied to Computing & storage virtualization solutions

- Focus on **Network Infrastructure Ethernet transport** delivering lossless Ethernet solutions for mission critical Data Center deployments while meeting the **business data rate growth** requirements in Data Center towards 100G

- Deliver **interoperability** with other best-in-class Data Center services while focusing on augmenting network integration with services requirement domain extensions within or across Data Centers

**Delighting Customers with the highest quality experience possible**
Avaya’s Data Center Reference Architecture

Management Applications & Services

Application Virtualization

Application Services
- Traffic App Switch
- Application Acceleration

Security
- Intrusion Detection
- Firewall
- VPN Switch

Ethernet Infrastructure

Core

Server Access

Compute Resources

Storage Network
- Infiniband
- Fiber Channel
- IO Virtualization
- Ethernet iSCSI

Storage Resources
- Storage Extension
  - 40G / 100G
- WAN Optimization
- WDM

Professional Services

Avaya’s core value in action: Dependable – Efficient – Cost Effective
Data Center

**Today**
- Ethernet Transport – Gigabit / 10 Gigabit
- Horizontal Stacking
- Switch Clustering
- Application Virtualization with VMware/Microsoft Solutions
- iSCSI Storage (Dell)
- 1st phase Virtualization (VRFs)

**Future**
- VSP 9000 10 Gigabit Core
- 10 Gigabit Top of Rack (ToR)
- 2nd Phase Virtualization – Shortest Path Bridging
- 40 Gig and 100 Gig Solutions
- Lossless Ethernet
- Unified Ethernet Fabric
- Storage Convergence (iSCSI / FCoE)
- Ethernet Attached Storage
Building a Resilient and Cost Effective Data Center

**Horizontal Stacking Delivers Dependability**

- High bandwidth and low latency
  - Optimizes Server-to-Server communication
- Reduces the number of ports required on the Core
  - Reduces costs and complexity
- Simplifies cabling between Server and Switch
  - Reduces complexity and maintains rack cooling integrity
- Easily scale capacity (Switches and Uplinks)
  - Zero network downtime for maintenance or failure
- Always-On......

**Why Horizontal Stacking?**
- Most cost effective solution to provide Server connectivity — adaptable to ToR or EoR
- Leverage best in class Active / Active Switch clustering for in-service maintenance
- Ability to eliminate ALL single point of failures when required by business
- Green IT Data Center, lowest power and heat dissipation
- Offload the core from Server to Server communications leveraging Resilient Terabit Stacking architecture
- Distributed forwarding to maximize performance
- Inter-operable with all storage solutions and virtualized computing (VMware and Hyper-V)
Branch Strategy – 3 to 5 Year Outlook

- Deliver **Uninterrupted Business Services** for Branch Offices with failure & recovery unnoticeable to business critical applications
  - Deliver SIP survivability & interoperability with Nortel’s IP Telephony solutions
  - Maintain leadership in network design efficiency & energy efficiency for a **Greener IT**

- Extend **Network Virtualization** solutions to the Branch where Ethernet services are being provided while providing innovative alternative solutions to MPLS, meeting Enterprise business needs & driving a lower TCO model

- Enable consolidation of services into the Data Center, driving **TCO reduction**. Focus of End User experience, ensuring Corporate **access & performance** aren’t compromised

- Deliver **interoperability** with other key network services such as SIP, WAN, Routing, etc while allowing enablement of local services & integration to drive lower **TCO** to the Business

*Extend consistent, high quality access/services to extended locations/users*
Unified Networking for Branch and Small Offices

*Integrated SIP and Branch Survivability*

- Consolidate UC, Voice, Gateway and Networking functions into a single, integrated device
- Create a complete SMB or Enterprise Branch communications solution at a competitive price
- Reduce network complexity and streamline operational costs
- Improve Employee collaboration / productivity for up to 250 users
- Provide OCS Survivability for customers choosing MSFT as UC partner
- Deliver SIP Survivability with both the SR2330 and SR4134 platform

**Why Avaya’s Unified Branch?**
- Integrated Branch office solution delivering on Branch consolidation business requirements
- Integrated network services with pay as you go licensing model – F/W, IDS, VPN
- Enterprise Class Routing support for IPv4, IPv6 and MPLS
- Integrated Ethernet Switching & PoE when desired
- Adaptable to business needs and UC strategy
  - SCS SIP Call Server integration
  - SIP Survivability – CS1k, CS2k, SCS, 3rd party
  - OCS Survivability
- Full set of WAN services while offering Ethernet WAN when available to your branch
- Full set of telephony services (FXO, FXS)
- Product set for Traditional WAN Routing requirements

Take the award winning SIP-based Software Communications System…

Add to the media bay of a full-featured Secure Router 4134

Complete UC, Voice & Data network solution