BROADCOM STRATAXGS® TRIDENT II SERIES:
USHERS NEW ERA IN CLOUD-SCALE NETWORKING

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AGENDA

• Market Dynamics
• 10/40GbE Opportunity
• Series Introduction
• Summary
CONTENT CONSUMPTION DRIVING TRAFFIC GROWTH

>100% CAGR Since 1990

By 2015, 1 million minutes of video content will cross the network every second

Between 2010 and 2015, global mobile data traffic will increase 26x

By 2015, the number of devices connected to IP networks will be 2x the global population

Source: Cisco VNI, sixrevisions.com
EXPONENTIAL GROWTH IN USERS AND APPS

Tenants

Employees

Customers

Network Elements Need to Deliver More Bandwidth, Scale and Functionality
THE CUSTOMER CHALLENGE

Goal

Delivering More Bandwidth, Scale and Functionality

Constraints

Board Space

System Cost

Power Consumption

Changing the Paradigm of How Cloud Networks are Built
FUNDAMENTAL SHIFT IN DATA CENTER NETWORK INFRASTRUCTURE AND SWITCHING DESIGNS

- Cloud IP traffic will grow at a 66% CAGR 2012 – 2015: >34% of total DC traffic
- Public cloud workloads to increase at a 50 percent CAGR in the next three years
- 40 percent of servers are virtualized, projected to increase to 75 percent by 2015
- Data center 10GE ports projected to grow at a 40% CAGR 2012 - 2016
- 40GE ports projected to grow at a CAGR of 130 percent from 2012 - 2016

Strong Market Trends and New Workloads Driving to Fast, Flat and Fat Network Designs
FROM SCALE-UP “BIG IRON” TO EFFICIENT SCALE-OUT CLUSTERS

Modular Switches with Multiple Silicon Components
- North-South traffic patterns
- Designed for tiered and oversubscribed networks
- Differentiation

Fixed Form Factor Switches with Single Integrated Silicon
- East-West and virtualized traffic patterns
- Fast, fat and flat networks
- Common network architecture
PROLIFERATION OF THE COMMON BROADCOM-BASED SWITCH ARCHITECTURE

OEM Control Plane Software & SDN Software Built on Common SDK & Data Plane APIs
INTRODUCING STRATAXGS® TRIDENT II SERIES

Higher Bandwidth and Integration
960-1280Gbps Ethernet Switching Capacity

Very Large Network Nodes and Topology Scale
Smart-Table technology enables large & configurable L2/L3 tables

Significant Price-Performance Improvements
Smart-Buffer & Smart-Hash technologies for improved congestion handling, reliability and visibility

Higher Network Utilization & Multi-Tenancy Support
Smart-NV technology for VxLAN, NVGRE-based network virtualization

Extending Leadership with New Cloud-Optimized Ethernet Switch with 100+ 10GE Ports
DELIVERING UNPRECEDENTED VALUE AND SCALE

Data Center Aggregation and Access Switches

Traditional High Density Switch Using Multiple Chips

- Large Fixed or Modular Form Factor
- Packet Processor
- Fabric Processor
- Packet Buffer
- ... Higher Cost, Higher Power, More Space, Higher Latency

Single Chip Delivering High Scale & Performance

- 1U or 2U Fixed Form Factor
- 104x10GE, 96x10GE + 8x40GE, 64x10GE+16x40GE, 32x40GE,
CLOUD-OPTIMIZATION WITH NEW SMARTSWITCH TECHNOLOGIES

- **Smart-NV**
  - Network Infrastructure Virtualization @ Wire Speed
  - Higher Network UTILIZATION with more VMs & Multi-tenancy

- **Smart-Buffer**
  - Load-Based, Shared, Dynamic Packet Buffering
  - High Burst Absorption for DETERMINISTIC Performance

- **Smart-Table**
  - Largest Address Tables with Network Topology-Based Profiling
  - SCALE to Very Large Number of VM and Server Nodes

- **Smart-Hash**
  - Eliminates polarization in networks with high, diverse traffic patterns
  - Reliable Network PERFORMANCE & VISIBILITY
INTEGRATED VXLAN NETWORK VIRTUALIZATION SUPPORT

Industry’s highest Layer 3 and ECMP table scale for massive network scale with full cross-sectional bandwidth

 Integrates VxLAN Transit Switch and Gateway features on-chip. BRCM is a co-author of the VxLAN specification

Delivers network services & QoS for up to 8K tenants and 16K VM abstractions for legacy hosts connectivity

Layer 2 Networks for Tenants and Applications (Small to Medium Scale)

VxLAN L2oL3 Network Virtualization

Layer 3 Provider Network (Massive Scale)

Source: Tenant images sourced from clker.com, freeiconsweb.com, iconarchive.com

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UNIQUE AND INTELLIGENT PACKET BUFFERING DELIVERS 5X BETTER UTILIZATION

- Smart-Buffer technology utilizes on-chip packet buffer memory
- Minimizes latency by avoiding packet reads/writes to/from external memory.
- Packet buffers are dynamically shared across all ports/queues
- Queue discard thresholds sized dynamically based on congestion
- Provides excellent burst absorption and optimal buffer utilization

![Bar chart comparison between 96x10GE Switch with and without Smart-Buffer technology]
SUMMARY

- World’s highest density, feature-rich 10/40GbE switch
- First single chip to deliver 100+ 10GbE ports
- 4X network virtualization scale
- 2X greater forwarding capacity
- Scales to support tens of thousands of server, VM & storage endpoints
- Integrated SmartSwitch technologies

Unprecedented Innovation for Cloud-Scale Networking
Thank You