Session S02

Nortel GbESM Customer Scenarios

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Agenda

- **Review key features of the Nortel GbESM**
  - Commonly required functions
  - Other functions that differentiate the GbESM
- **Present selected customer case studies**
  - Customer names are not included on slides
  - Industry
  - Software to be used
  - Switch functions planned to put to use
  - Decision factor – what made them choose to buy
  - Other interesting aspects of the deal

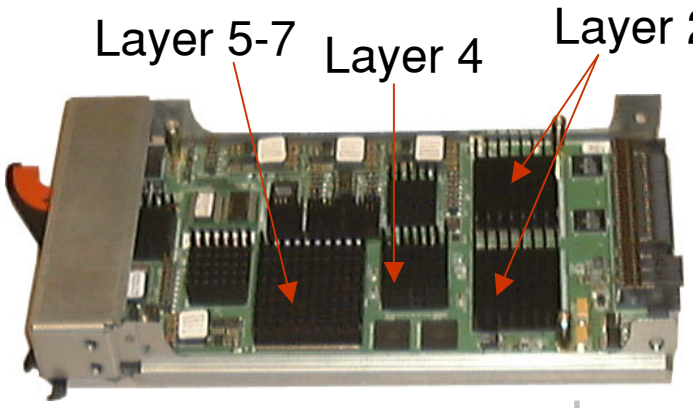
Layer 2-7 GbE (Gigabit Ethernet) Switch Module

IBM ^ BladeCenter

IBM Option # 73P9057

GbESM

Layer 2-7, GbE Switch Module for IBM ^ BladeCenter enables:



- Improved Application Availability
- Increased Application Performance
- Better Infrastructure Scalability
- Simplified Infrastructure Management
- Higher Security
- Lower TCO

Commonly required functions

- **Virtually all customers required these**
  - Port aggregation
    - External physical ports treated as one logical pipe
    - “Etherchannel”
  - Multiple VLAN support on a port
    - “VLAN tagging” 802.1Q
- **Other switch products also offer these functions**
  - They are not differentiators

Key functional differentiators

- **These are the functions which can the GbESM offers which other Blade Center switch modules do not**
- **A quick list:**
  - Switching integration – Layer 2 and Layer 3
  - Traffic filtering for security
  - Support for High Availability designs
  - Server Load Balancing – Layer 4-7 switching
  - Multiple Spanning Tree support
    - Available on Cisco but not on D-Link switch module

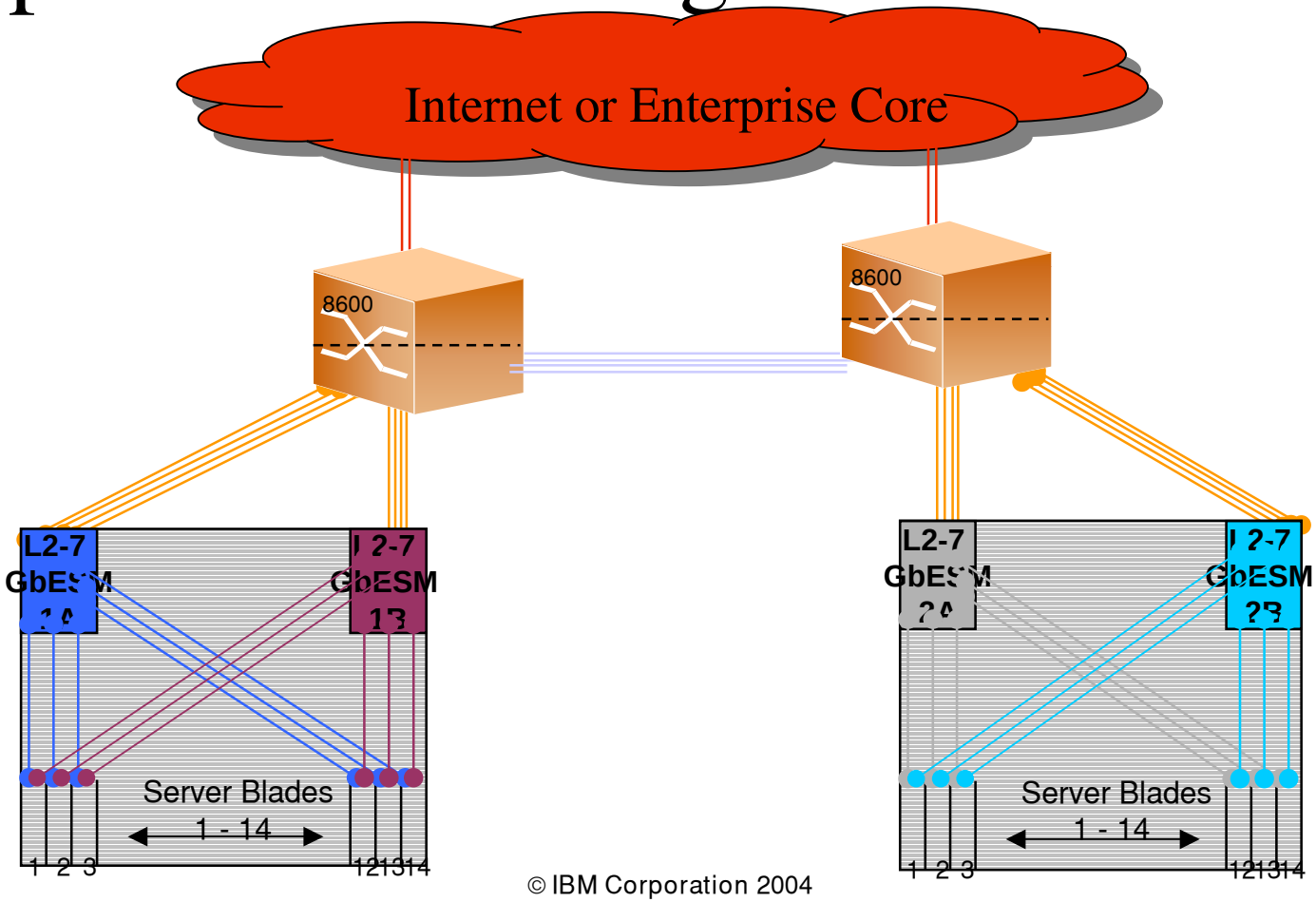
Layer 2/Layer 3 switching

- **The Nortel GbESM provides wire speed L2/L3 switching**
- **Layer 2 switching uses hardware addresses**
  - Most commonly Ethernet MAC address on network card
  - Broadcasts are sent to all ports of a Layer 2 switch
- **Layer 3 switching uses IP (or similar) addresses**
  - Broadcasts are not forwarded from one VLAN to another by default
  - Each VLAN corresponds to one IP subnet
    - Occasionally more than one subnet
  - Layer 3 switching routes traffic between subnets/VLANs
    - The device that traditionally does this is a “router”

Traffic Filtering for Security

- **Traffic can be forwarded or dropped based upon**
  - IP address ranges (source/destination) and/or
  - Application (IP port) and/or
  - other parameters
- **Filters allow network administrators to implement policies**
  - Which users can access which applications
  - Which servers can make what type of requests of other servers (such as in Websphere)
  - Which management stations (such as IBM Director, RDM) can manage which servers

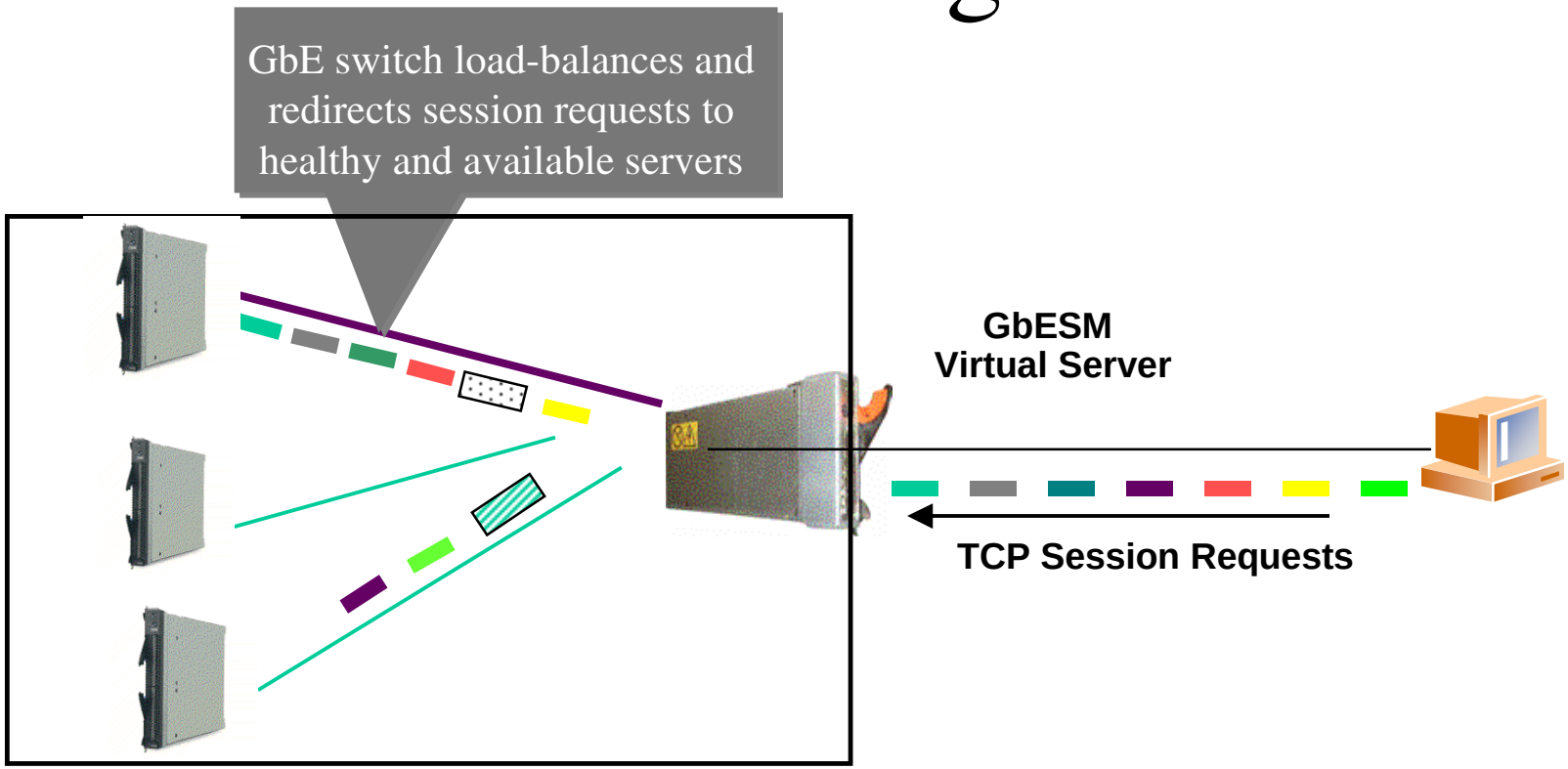
Support for High Availability – Multiple Chassis Design



Support for High Availability designs

- **The GbESM can support designs where:**
  - One switch module backs up another and takes over if it should fail - or lose all upstream connectivity
  - One Blade Center chassis backs up another and takes over application(s) which run on it if it should fail
  - One server blade can back up one (or more) others and take over application(s) which run on it if it should fail
  - These capabilities can be used together to make a very survivable design
  - Failover can take less than a second

Server Load Balancing



- Reduced application response time
- Increased application reliability
- Increased efficiency for computing resources
- Increased application scalability

Server Load Balancing – Layer 4-7 Switching

- **Requests for an application are spread over multiple servers which all run that application**
- **This enables the application to support more requests than a single server can**
- **If server(s) fail the remaining servers continue to handle requests**
- **Supported applications include**
  - IIS, Apache, WebSphere web servers
  - Websphere application servers
  - E-mail servers
  - Citrix
  - And many others

Multiple Spanning Tree support

- **Spanning tree ensures that there are no Layer 2 loops in the network**
- **Multiple Spanning Tree is needed to allow multiple VLANs to function in a complex Layer 2 topology**

Customer Scenarios

Cellular Phone provider

- **Software:**
  - Homegrown usage metering application
  - 50 web based applications, online FAQ and customer service
- **Functions:**
  - Layer 2/3 switching plus Network Address Translation
  - Filtering and security
  - High Availability
- **Decision factors**
  - Customer wanted filtering to ensure an intruder could not use one server blade to attack all of the others
  - HA functionality

Regional hospital chain

- **Software**
  - Windows front end to mainframe application using 3270 “screen scraping”
    - The application enables Doctors and Nurses to enter patient information
  - Functions
    - Server Load Balancing – Layer 4
    - High Availability - switch redundancy
    - Layer 3 switching (routing)
  - Decision factor
    - Combination of SLB and redundancy allowed them to re-architect the application to remove the “gateway” to the mainframe which was a single point of failure

Securities brokerage

- **Software**
  - Kronos timekeeping application package
- **Functions**
  - Switching and routing
  - Server load balancing
- **Decision factor**
  - Customer wanted to grow their Kronos environment
- **Interesting note – the customer is located in Perth, Australia**

Managed services – hosting

- **Software**
  - Various software packages
  - Windows and Linux O/S
- **Functions**
  - L2, L3 switching
  - High availability
- **Decision factor**
  - High availability standard design for customers of the hosting provider

Financial Institutions

- **Multiple customers with similar requirements**
- **Software: Web based applications**
  - Several Linux / Apache implementations
  - Windows / IIS
  - Citrix
  - Clustering
  - Home grown apps

Financial Institutions (cont'd)

- **Key functions**
  - L2 or L2/L3 switching
  - Some using SLB
  - Multiple Spanning tree support
- **Decision factors**
  - Overall depth of functionality
  - L2/L3 integration
  - Quality of tech support
  - Performance
  - One customer had a hard requirement for multiple Spanning tree support

Telecom / Hosting provider

- **Software: Multiple architectures**
  - Linux, Solaris
  - Apache
  - Web Logic
- **Key functions**
  - L2/L3 switching
  - Multiple Spanning tree
- **Decision factors**
  - Pricing
  - Overall depth of functionality
  - L2/3 integration
  - Performance

University

- **Software**
  - Web based application built on PeopleSoft
- **Key functions**
  - L2-7 switching including Load Balancing (SLB)
- **Decision factor**
  - The customer had a problem implementing SLB with a competing product which they solved using the Nortel switch

Automobile Manufacturer

- **Software**
  - Factory floor applications
  - Red Hat Linux
  - IBM Director
- **Key functions**
  - L2/3 switching initially
  - Planning for future SLB implementation
- **Decision factor**
  - Support for SLB for their custom applications

Summary

- **Few customers required all of the available functions**
- **Some functions were commonly required**
  - Layer 3 switching (routing)
  - Load Balancing (SLB)
  - High Availability support

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