



# 40GbE for Blade Server and ATCA Systems

Ilango Ganga  
Intel Corporation  
May 2007

# Contributors & Supporters

- Ronald P Luijten, IBM
- Alan Benner IBM
- Petar Pepeljugoski IBM
- Shimon Muller, Sun Microsystems
- David Martin, Nortel Networks
- Howard Frazier, Broadcom Corporation
- Schelto VanDoorn, Intel Corporation



# Overview

- Blade servers and ATCA systems can scale to take advantage of 40GbE
- 40GbE will extend the longevity of the modular computing systems

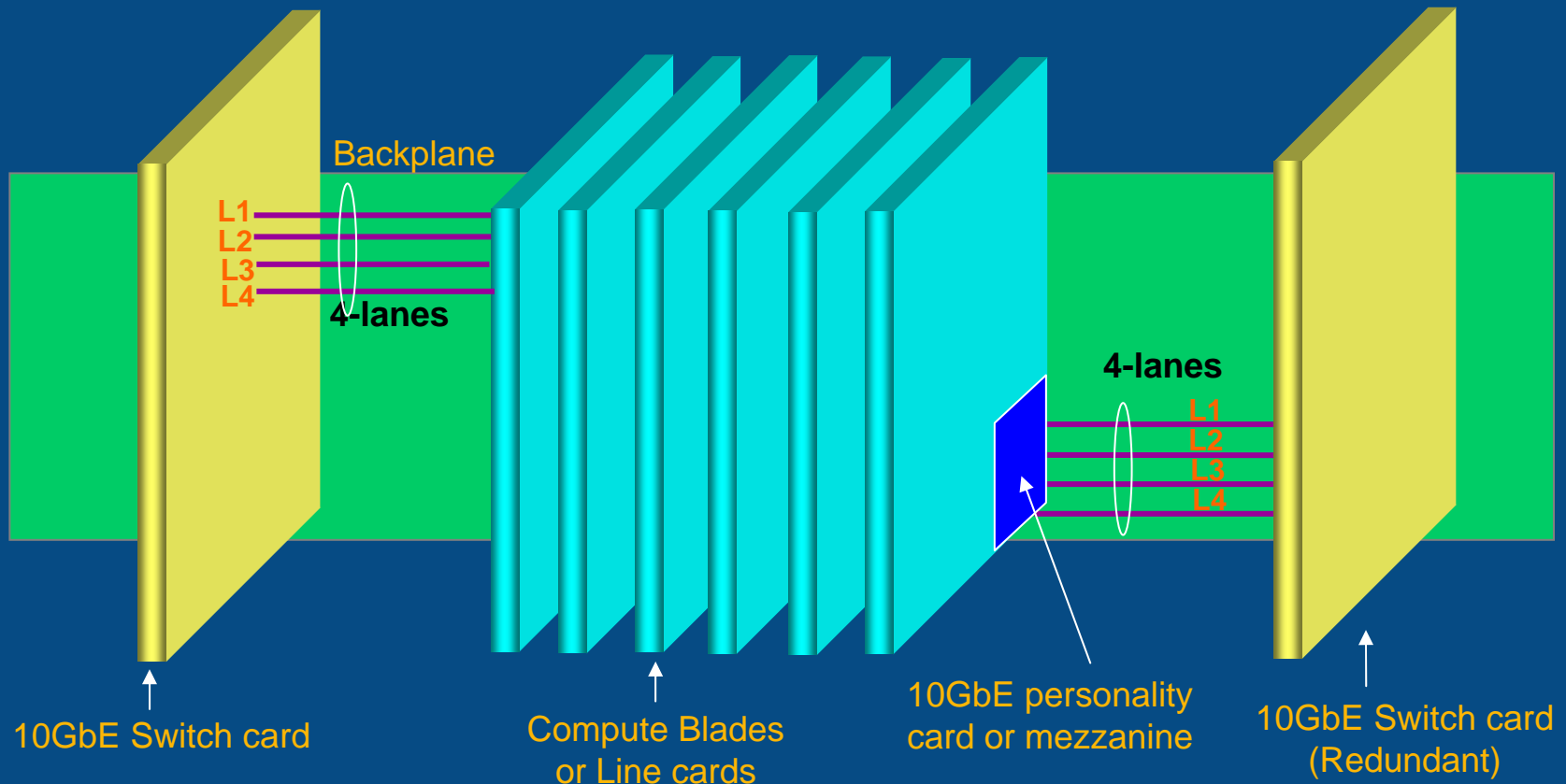


# Blade server system overview

- Second generation Server blades and ATCA systems are equipped with 4-lane serial interconnects
- The backplane interconnects can scale from 3.125Gb up to 10.3125Gb serial per lane
- IEEE 802.3ap backplane Ethernet channel models considered 4-lanes. So many second generation systems already have chassis that are 40GbE ready
- The 4-lane backplanes can take advantage of 40GbE without system redesign
- 40GbE provides investment protection by extending the chassis longevity
  - Especially ATCA / Telecom market demands longer chassis lifetime, typically 10+ years



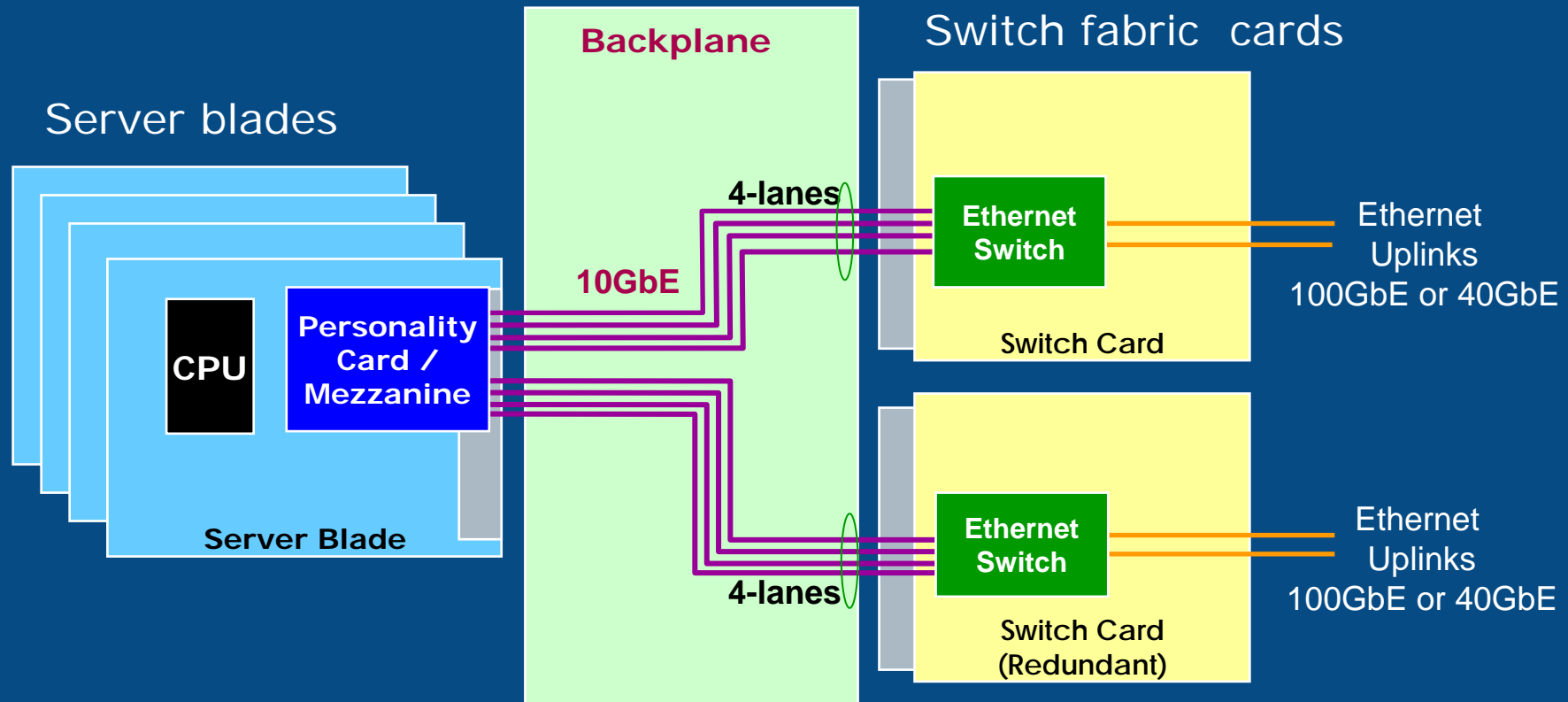
# Backplane System illustration



Note: The switch cards are shown at the chassis edge for simplicity.  
In real systems there could be multiple fabrics located at the center, edge, or rear of the chassis



# Backplane System schematic



- Backplane configuration
  - 4-lane Dual Star to support 10GBASE-KX4
  - Can support 10GBASE-KR per lane
  - Allows 40GbE MAC rate leveraging the KR PMD to support “40GBASE-KR4”

# Summary

- 40GbE MAC rate allows
  - Existing 4-lane 10GbE backplane systems to scale to 40GbE leveraging the 10GBASE-KR technology
- 40GbE provides future proofing of Blade Server and ATCA systems
  - Extends the longevity of systems for another 5-10 years

