Netezza High Performance System

- Disk Enclosures
- SMP Hosts
- Snippet Blades (S-Blades)

- Slice of User Data
- Swap and Mirror partitions
- High speed data streaming

- SQL Compiler
- Query Plan
- Optimize
- Admin

- Processor & streaming DB logic
- High-performance database engine streaming joins, aggregations, sorts, etc.
Netezza S-Blade
Netezza S-Blade

- Intel Quad-Core 2+ GHz CPU
- 16 GB DRAM
- SAS Expander Module
- Dual-Core FPGA 125 MHz

IBM BladeCenter Server

Netezza DB Accelerator
Snippet Processing – FPGA Co-Processor

Snippet Processor

8 Snippet Processors per S-Blade
“New Product” Single-Rack Specification*

- 8 Disk Enclosures
- 96 1TB SAS Drives (4 hot spares)
- RAID 1 Mirroring

- 2 Hosts (Active-Passive):
  - 2 Quad-Core Intel 2.6 GHz CPUs
  - 7x146 GB SAS Drives
  - Red Hat Linux 5 64-bit

- 12 Netezza S-Blades:
  - 2 Intel Quad-Core 2+ GHz CPUs
  - 4 Dual-Engine 125 MHz FPGAs
  - 16 GB DDR2 RAM
  - Linux 64-bit Kernel

** User Data Capacity: 128 TB**
** Data Scan Speed: 145 TB/hr**
** Load Speed (per system): 2+ TB/hr**

** Power Requirements: 7.6 kW**
** Cooling Requirements: 7.8 kW**

* For multi-rack P-Series systems: one host is included in each of the first two racks

**: 4X compression assumed
Key Initial Performance Enhancers

*Individual Hardware Components:*

- CPU and memory speed: 8X
- Disk read speed: 2X
- Disk write speed: 4.5X
- FPGA speed: 2X
- Memory per Snippet Processor (SP): 2X
- L2/L3 cache: 13X
- Network: 3X

*Overall System Features:*

- SP Table Cache (compressed): 1.25 – 2.5X
### “New Product” vs. NPS 10000 Series Performance

#### Performance improvement by type of workload

<table>
<thead>
<tr>
<th>Strategic</th>
<th>Operational</th>
<th>Compute Intensive</th>
<th>Bulk Data Movement</th>
<th>Data Maintenance</th>
</tr>
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<tbody>
<tr>
<td>3-5X</td>
<td>2-3X</td>
<td>10X</td>
<td>2.5X</td>
<td>3X</td>
</tr>
</tbody>
</table>

*Customer results will vary depending on data and workload*

*Performance comparison on a per-rack basis*

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**Mixed workload performance improvement: 3-5X**