Focus and Interest Areas

**Workflow Acceleration:** Workflow acceleration through high-performance HPC, UV/HPDA integration with Lustre-based data pools

**System Uptime and Resilience:** Automated capabilities for discovering and isolating component faults to minimize downtime and costs

**Converged Storage and Compute:** Flash-based “TierZero™” high-performance storage with active data management
Workflow Acceleration

• As HPC workflows expand to include computation, large data set analysis and visualization – optimizing the movement of data becomes critical

• SGI’s architecture includes both near term and long term acceleration

Current Data Points:
• HPC and HPDA Convergence as Key Solution Requirements
• Consistent customer interest in the use of common ‘data lakes’ for data access supporting multiple uses
SGI UV Multi-Rail Lustre
In-Process Co-Development Project with Intel

• UV optimized client for high-performance Lustre integration
• Multiple IB or OmniPath connections for massive throughput
• Technical details announced last week at Lustre User Group (LUG) 2016
System Uptime and Resilience

Energy Efficiency is a Worldwide Issue

- Forecasting
  - Accurately measure and predict power usage for better planning

- Management

- Control

Real Time Memory Management

- Reduce Costs
  - Avoid memory sparing and mirroring costs

- Increase Performance
  - Maximize memory bandwidth

- Improve Uptime
  - Reduce downtime & admin workload
## Convergence of Compute & Storage

<table>
<thead>
<tr>
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<th>The Old Way</th>
<th>The New World</th>
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<tr>
<td>HPC Performance Measurement</td>
<td>GB/sec</td>
<td>TB/sec</td>
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<tr>
<td>High-Performance Storage Tier</td>
<td>Disk</td>
<td>Flash &amp; 3DXPoint</td>
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<tr>
<td>Capacity Storage Tier</td>
<td>Tape</td>
<td>Disk</td>
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<td>(Tape for Resiliency Tier)</td>
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TierZero™ Storage
UV Scalable Converged Compute & Storage Platform

• Single scale-up SMP system delivers
  – Compute:
    • Up to 480 Intel Xeon™ cores (32 sockets)
  – Memory:
    • Up to 24TB DRAM
  – Non-volatile Memory:
    • Up to 128TB FLASH
    • Up to 30 Million IOPs
    • Up to 200GB/s

• All in one rack
• No switches, no arrays, no problems
• Generic servers (e.g. Arcadia) can work as well by scaling out

Intel P3700
400K IOPS
2.4GB/s