Everest
Scaling to Petabytes
Everest Architecture

- **Massively Parallel (Tens of PB)**
  - Commodity Clusters
  - Multi-tier scalability
  - Distributed Columnar Storage

- **Smart**
  - Optimized compression
  - Parallel Vector Query Processing
  - Query and Storage optimizations
  - Query Expression and Columnar caching

- **Leverage PostgreSQL**
  - Tools and Connectivity (ODBC)
  - extensibility
  - UDF & UDAF framework

- **Inexpensive**
  - COTS
Performance and Scale

• Proven Petabytes scale in production
  – Approaching 2 PB, projected to grow > 30 PB by 2009
  – Largest table: 3.5 Trillion rows (time partitioned)

• 10x Price-Performance relative to commercial systems

<table>
<thead>
<tr>
<th>Data size</th>
<th>Everest (min)</th>
<th>Vendor A (min)</th>
<th>Vendor B (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 TB (600 B rows)</td>
<td>177</td>
<td>414</td>
<td>325</td>
</tr>
<tr>
<td>30 TB (200 B rows)</td>
<td>60</td>
<td>95</td>
<td>91</td>
</tr>
<tr>
<td>HW Cost (1 PB)</td>
<td>250</td>
<td>1200</td>
<td>1200</td>
</tr>
</tbody>
</table>

![Performance comparison chart]
Everest Performance Advantages

• Source of Performance and Scale
  – Distributed Compressed Columnar Storage
  – Highly Parallel and Asynchronous
    • Multi threaded Query Execution as well as Storage
  – Vector Query Processing
  – Multi-level data partitioning and query partitioning
  – Cluster-level Compressed Columnar caching
  – Query expression caching
  – Yahoo! specific language extensions and UDF & UDAF