PASIG – On Premise Tiered Storage & Cloud
Oracle Storage Technology 101 Session

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Why Store Data in the Cloud?

1. **Ease of use**

2. **Improved ability to share data**

3. **Limited internal IT staff**

Source: *IDC’s Disk Based Data Protection QuickPoll Survey, December 2013*
Emergence of Cloud Storage in IT Processes

Data Protection and Archive

- Authentication
- Strong encryption
- Specific management
- Specific logging and reporting
- Bandwidth requirements
- Lossless compression
Cloud Concerns

Take Care When Choosing What Data You Keep in the Cloud

**Performance**
Network bottlenecks can effectively stop restores

**Security**
Data is on-line and at risk for attacks

**Cost**
Monthly fees become an annuity

Data can be restored from tape, predictably on-site

Data on tape is off-line

Tape is less expensive than the cloud
**Why Tape?**

**Modern Tape is Ideal for Cold Storage**

<table>
<thead>
<tr>
<th>Power</th>
<th>Floor Space</th>
<th>Areal Density</th>
<th>Reliability</th>
<th>Life Cycle</th>
<th>Compression</th>
</tr>
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<tbody>
<tr>
<td>Study* concludes that disk consumes ~230x more energy than tape</td>
<td>Tape is far more dense than disk based solutions</td>
<td>We expect a 35% per year areal density increase through 2020 for tape while HDD is expected to grow 20% annually</td>
<td>The uncorrected bit error rate of tape is 10,000 times more reliable than disk</td>
<td>Tape technology has a longer lifecycle than disk technology making it ideal for long-term retention.</td>
<td>Data can be compressed via tape drive hardware without impacting performance</td>
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</tbody>
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Modern Tape Provides Lowest Cost Cold Storage: 1/14th the TCO of a disk based solution that uses industry standard components and desktop drives

*The Clipper Group: “In Search of the Long-Term Archiving Solution – Tape Delivers Significant TCO Advantage over Disk*
Roles of Tape in the Cloud

<table>
<thead>
<tr>
<th>Cloud Seeding</th>
<th>Cloud Recovery</th>
<th>D2D2T2C</th>
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<tbody>
<tr>
<td>• Get large volumes of data</td>
<td>• Get large volume</td>
<td>• Additional cold storage tier</td>
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<tr>
<td>to the cloud</td>
<td>from the cloud</td>
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<td>01100100 10010110 10011010</td>
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<tr>
<th>Cloud-based Tape</th>
<th>Cloud Tiering</th>
<th>Cloud BR/DR</th>
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<tr>
<td>• Tape Web interface for</td>
<td>• Tape as an</td>
<td>• XaaS Cloud Data Protection</td>
</tr>
<tr>
<td>direct cold storage service</td>
<td>internal low cost</td>
<td>and Disaster Recovery</td>
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<td></td>
<td>tier of storage</td>
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Amazon Glacier is 6 times more expensive than Oracle’s StorageTek Tape offerings (data archival service priced at $0.010 per GB per month)*

* At the top of that, retrieving 10% of data per month nearly double the Glacier cost
D2D2T2C Solution Example – Cold Storage / Archive

Oracle Storage Archive Manager

Data migrated to low-cost tape based on an automated policy

Data accessed via a web services API

Oracle Storage Archive Manager