



Data Protection WITH Recovery Manager

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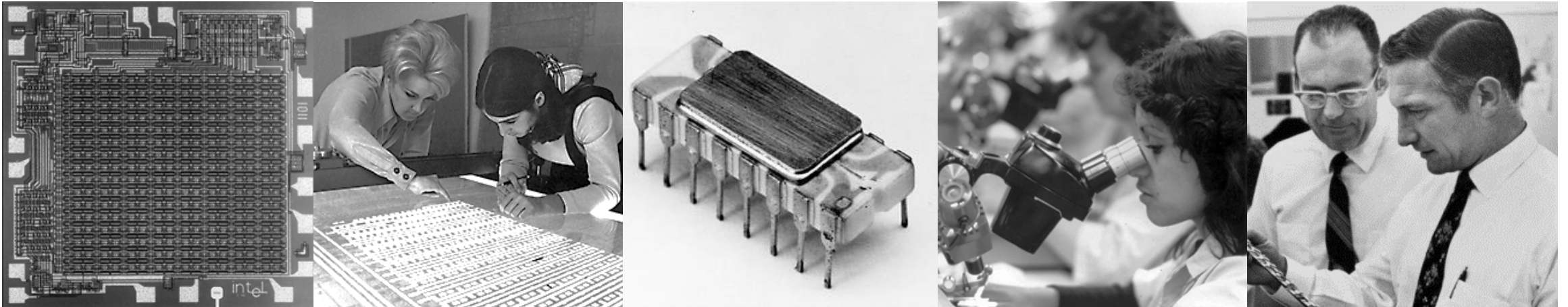
Intel Corporation

Agenda

- INTEL Corporation – Introduction
- Database Environment Summary
- Legacy Backup Overview
- Challenges
- Recovery Manager – Use Cases
- ZDLRA integration with RMAN
- Recovery Manager with ZDLRA – Key advantages

History of Intel

- **1968: Intel is founded by Robert Noyce and Gordon Moore**
- **1971: World's first microprocessor**
- **Now: Innovation that expands the reach and promise of computing**



Intel Corporation

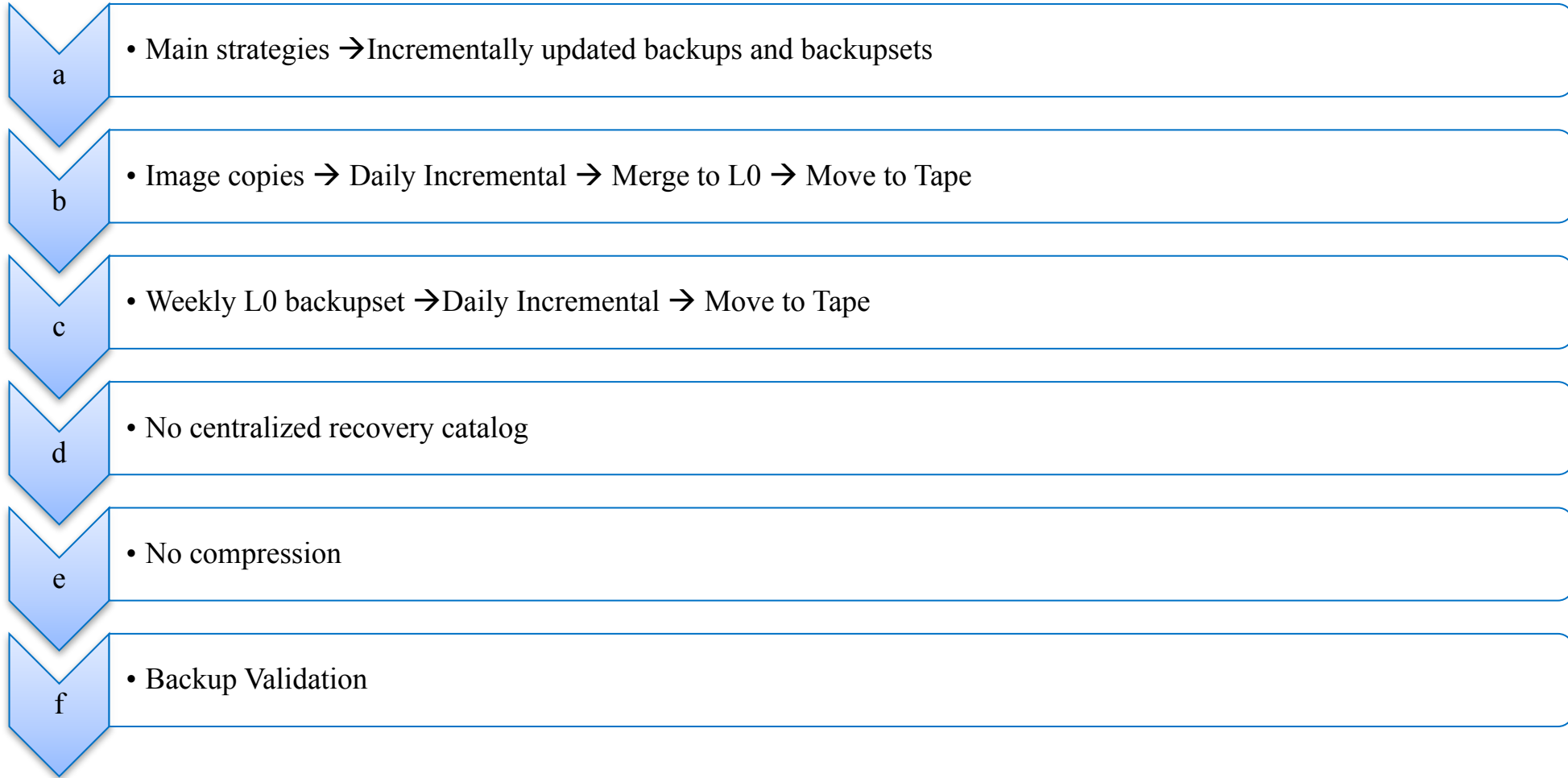
- Leading Manufacturer of Computer, Networking Communications Products, Memory solutions, Security & Programmable solutions.
- \$59.38B in Annual Revenues
- Over 100K Employees Globally

THE ONLY THING MORE AMAZING THAN OUR TECHNOLOGY IS WHAT THE WORLD DOES WITH IT

Database Environment Summary

- Automated manufacturing with complex integrated systems.
- Goals include -Yield analysis, process improvement, failure mode analysis and test time reduction.
- Database sizes ranging from few GB's to ~350 TB.
- Mix of Oracle Engineered systems and other vendors
- 24 x 7 uptime.
- Monitoring and Availability is key.
- Strict reporting SLA's.

Legacy Backup Overview



Challenges

- Allocate equal storage for backups on Tier 1 SAN
- Several operational issues managing backups
 - Validation taking longer and resource intensive
 - Data movement to SBT added another layer of complexity for VLDBs
- Resource impact
 - Prolonged Server resource utilization
 - I/O impacts on Tier 1 SAN when writing backups to disks
- Restores involved multiple steps and archive log management.
- Inconsistent scripts/backup types
- Multi vendor footprint – Challenges during troubleshooting.

Recovery Manager – Use Cases

- Leverage Block Change Tracking → speeds up incremental backups
- Validation: restore database validate, restore database preview
- Data Recovery Advisor → checks recovery health and proactively flags issues
- Duplicate Database : Active Duplicate enhanced in 12c to use backup sets → much more network efficient than 11g
 - Create standby DB with duplicate, and Migrate Database Cross-Platform
- For VLDBs, Convert Older partitions to ‘Read ONLY’ → reduces overall backup volume, as these tablespaces are only backed up once
- Uniform secure configuration: Store RMAN scripts in catalog
- Transparent to Data Guard role changes.
 - Time and resource saving through ‘restore from service’ feature in 12c
- Use of Multi Section in 12c → Supported with Incremental backups and image copies.

ZDLRA integration with RMAN

- ZDLRA: Leverage different protection policies → "Recovery Window" is important
- ZDLRA: Backups : FILESPERSET 1 for data files, as ZDLRA uses this value on restores. MAXPIECESIZE not supported.
- ZDLRA: EM integration reduces operational overhead
- ZDLRA: Do not make any changes to Recovery Appliance
- ZDLRA: System Activity Script (Doc ID 2275176.1)
- Backup Strategy with ZDLRA :



Recovery Manager with ZDLRA – Key advantages

- Reduce resource load on target (protected) DBs.
- Storage saving through compression on ZDLRA layer.
- Uniform Backup Environment: Single backup strategy.
- Flexible Backup Retention: Protection Policies, Recovery Windows.
- Reduce operational overhead: Reporting and Monitoring through Enterprise Manager
- Reliability, Availability & Performance: Hosted on Exadata HW
- Backup - Better RPO and RTO : Updated Level 0 restores
- Reduce vendor footprint.

