

April 3-6, 2006 • Manchester Grand Hyatt • San Diego, California



COMPUTERWORLD

STORAGE NETWORKING WORLD





What You Should Know about Different Vendor Approaches to CDP

Pat Bodin
CEO

Firefly Communications



**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

CDP Defined

- "Continuous data protection (CDP), also referred to as continuous backup, pertains to products that track and save data to disk so that information can be recovered from any point in time, even minutes ago. CDP uses technology to continuously capture updates in data in real time or near real time, offering data recovery in a matter of seconds. The objectives of CDP are to minimized exposure to data loss and shorten time to recover."



**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

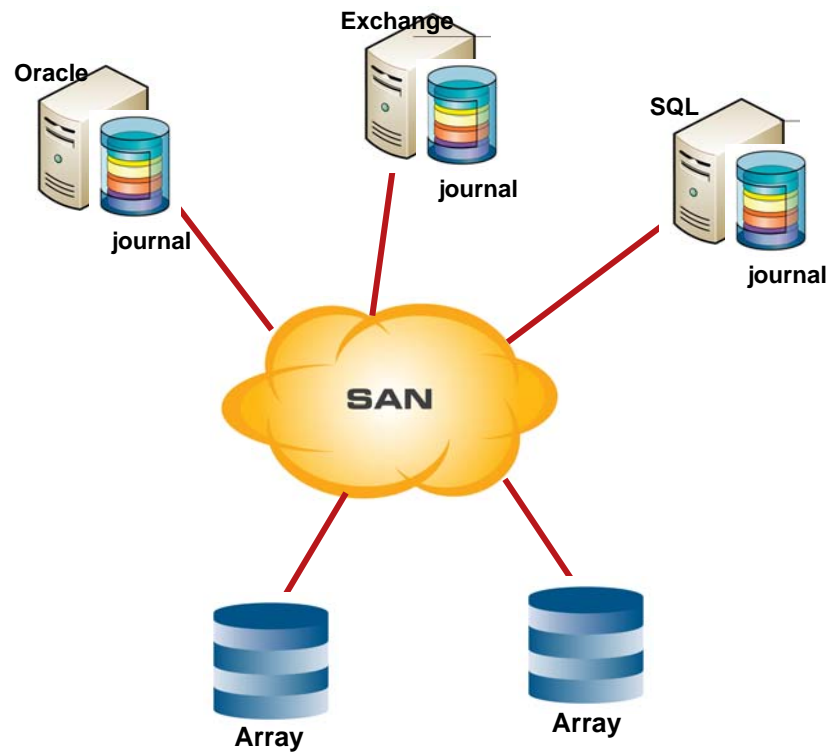
CDP Architectures

- Host Based
- Array Based
- Network Based



**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

Host Based CDP





Host CDP Benefits

- Many Product Options
- Simplistic Approach
- Low Cost of Entry
- Focused on Microsoft Applications
- SMB Market





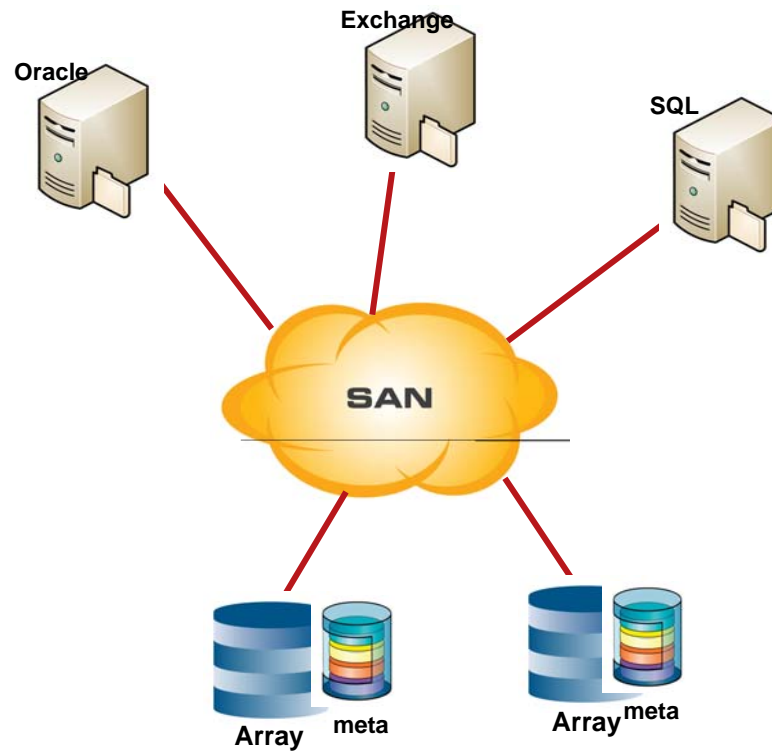
Host CDP Challenges

- Inter-host coordination (Data Consistency)
- CPU, Memory and LAN Bandwidth consumption (App Performance)
- Rollback Granularity
- Availability
- Scalability
- Cross Platform Support (MS Centric)



**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

Array Based (Incremental Snapshots)





Array Benefits

- Support for Multiple O/S
- Ability to Scale across multiple systems
- Extension of existing mirroring/snapshot
- Incremental Software update on existing arrays





**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

Array Challenges

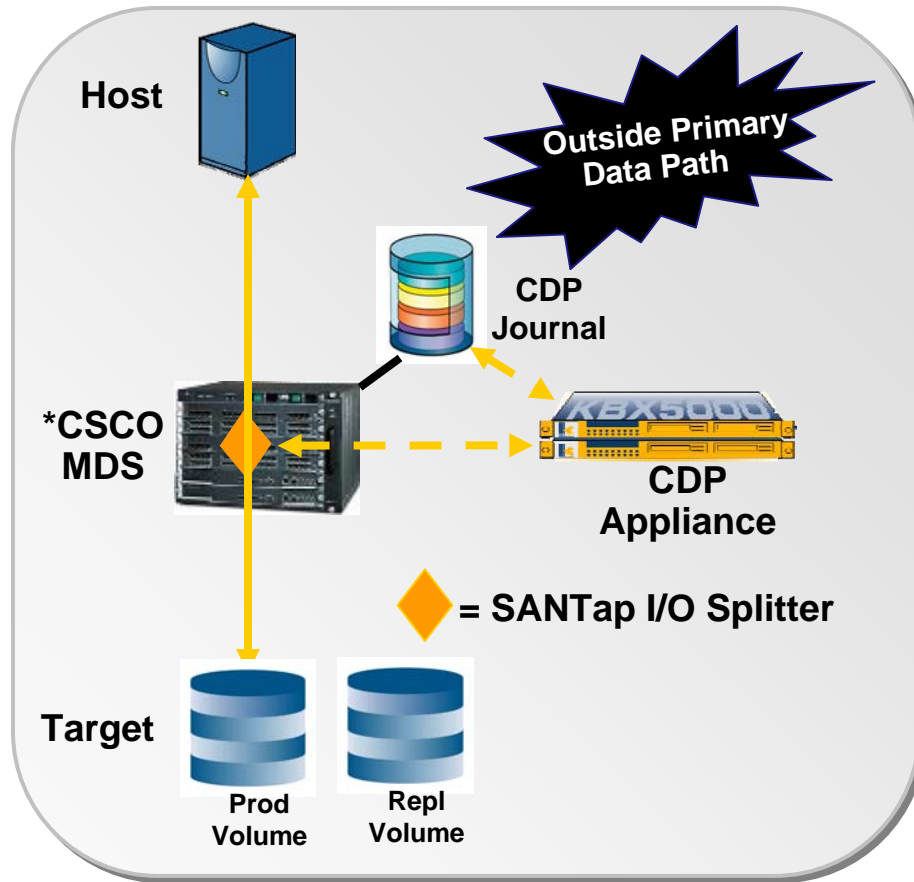
- Data Consistency
- Rollback Granularity limited to snapshot size
- Support for Heterogeneous Arrays limited
- Lack of Application Integration for consistent recovery
- Extra capacity required to manage images



**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

Intelligent Switch

Network Based CDP



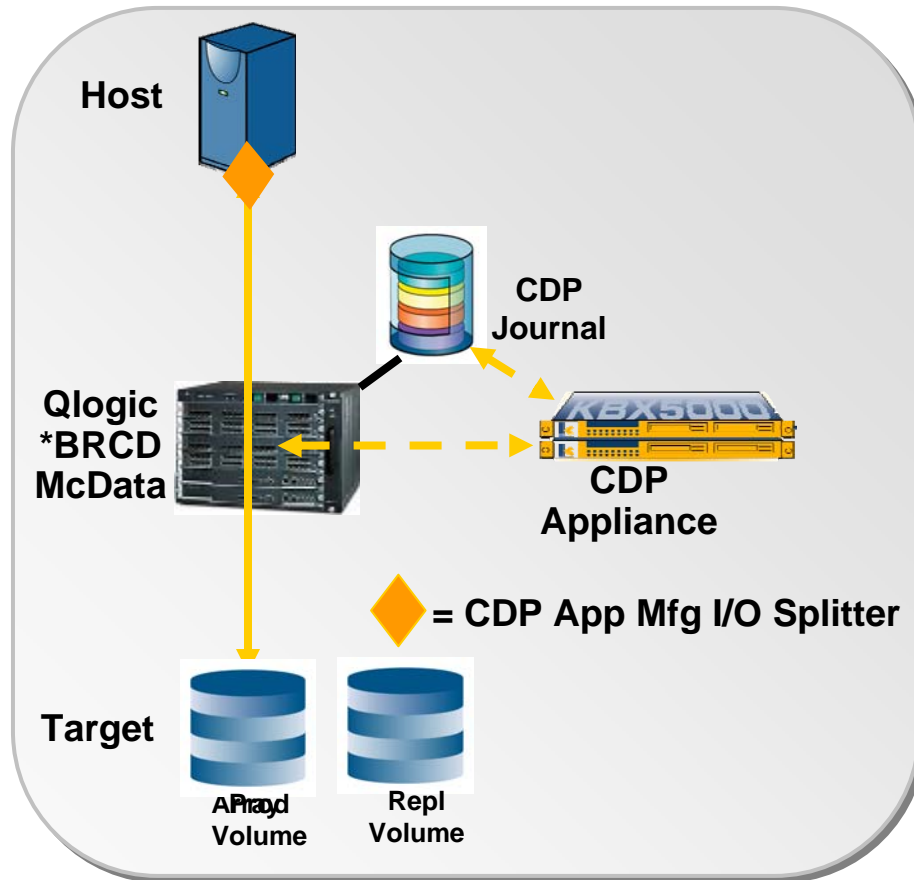
*BRCD has future plans to provide Intelligence in it's Tapestry appliance.



**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

Layer 2 Switch

Network Based CDP





Network CDP Benefits

- Data Consistency
- Heterogeneous Host O/S
- Heterogeneous Arrays
- No Performance Impact
- Highly Scalable
- *Application Level Recovery
- *Journal Compression
- *CDP and DR Integration

*Unique to select CDP Providers



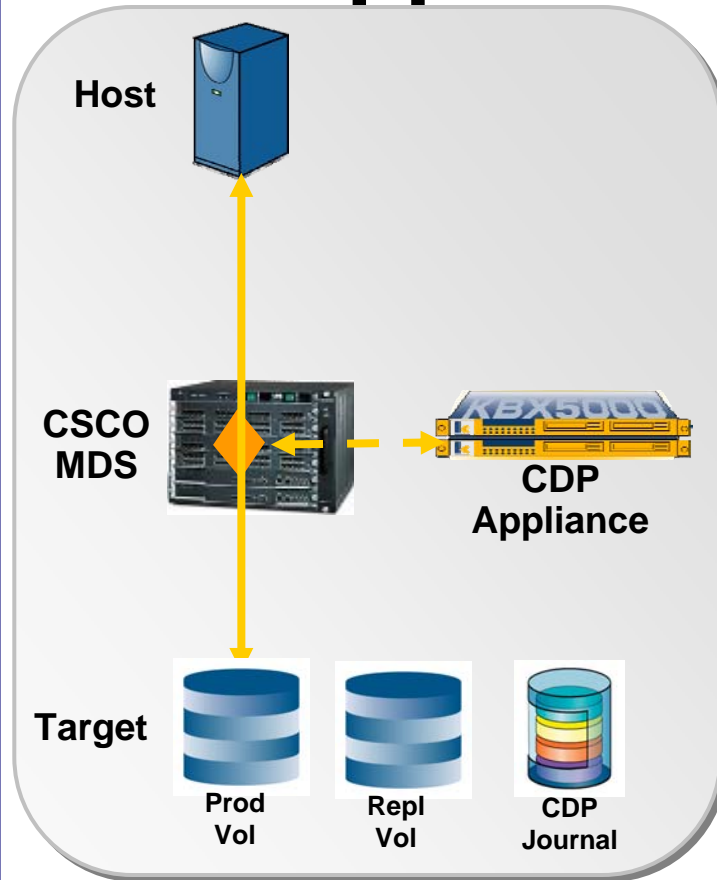
Network CDP Challenges

- Hardware Addition/Migration – CDP Appliance and for full benefit migration to Intelligent Switch
- Initial Cost compared to host solution
- Perceived Complexity
- High Availability (w/o clustering)



**STORAGE
NETWORKING
WORLD**
COMPUTERWORLD

CDP Case Study Application Recovery



1. Host writes data to production volume. The write is duplicated to the CDP appliance
2. The CDP appliance continuously writes to the replicated volume
3. The Journal volume maintains a record of all I/O with timestamp, events and unique application information.
4. The replicate volume can be mounted to the production host at any time.



CDP Impact

- Immediate recovery to ANY application event or any point-in-time
- Capacity reductions over traditional BCV or SnapShot
- Provides protection across any host, any disk, any failure mode.
- Combine with tape-backup for complete ILM solutions

The screenshot shows the 'Billing-Oracle Properties' dialog box with the 'Snapshots' tab selected. It displays a table of 'Tagged Images' with columns for Time, Size (MB), Tag/Event, and Application. Below the table are fields for 'From' and 'To' dates, and a 'Containing' field. At the bottom, there is a 'History Volume' section with a progress bar and summary statistics.

| Time | Size (MB) | Tag/Event | Application |
|----------------|-----------|--------------------|------------------------|
| 12/06 02:10:46 | 2,315 | 'Check-point 1123' | RBA: 345169 SCN: 46916 |
| 12/06 02:10:38 | 2,004 | 'patch complete' | RBA: 345166 SCN: 46913 |
| 12/06 02:10:23 | 2,191 | 'Pre-patch' | RBA: 345165 SCN: 46912 |
| 12/06 02:10:15 | 8,296 | 'Hot-backup 1052' | RBA: 345161 SCN: 46908 |
| 12/06 02:10:04 | 2,017 | 'Quiesce' | RBA: 345158 SCN: 46905 |
| 12/06 02:09:45 | 6,771 | 'Hot-backup 1022' | RBA: 345154 SCN: 46901 |
| 12/06 02:09:15 | 8,357 | 'Hot-backup 951' | RBA: 345148 SCN: 46895 |
| 12/06 02:08:46 | 6,486 | 'Hot-backup 921' | RBA: 345142 SCN: 46889 |
| 12/06 02:08:16 | 3,405 | 'Check-point 851' | RBA: 345136 SCN: 46883 |
| 12/06 02:07:46 | 5,922 | 'Hot-backup 821' | RBA: 345130 SCN: 46877 |
| 12/06 02:07:16 | 3,772 | 'Hot-backup 751' | RBA: 345124 SCN: 46871 |
| 12/06 02:06:46 | 3,624 | 'Hot-backup 721' | RBA: 345118 SCN: 46865 |
| 12/06 02:06:16 | 3,885 | 'Hot-backup 651' | RBA: 345112 SCN: 46859 |
| 12/06 02:05:46 | 4,355 | 'Check-point 621' | RBA: 345106 SCN: 46853 |
| 12/06 02:05:16 | 9,824 | 'Check-point 551' | RBA: 345100 SCN: 46847 |

From: 12/05/05 03:54:57 To: 12/06/05 03:54:57 Containing:

Current image: 12/06 02:10:38 ---> 12/06 02:10:46 (2.08 MB left)
Pause mode: N/A
Distribution mode: Normal
Data left to recovery: 1.84 GB

History Volume

| | |
|--------------------|------------------|
| Total Size: | 144.440 GB |
| Current Usage: | 105.407 GB (72%) |
| Compression ratio: | 4.13 |

Your mileage may vary and Not all CDP solutions are created equal!



CDP Recommendation

- CDP Best Practices are based on your environment
- SMBs have different needs than mid to large businesses.
- There are GOOD alternatives to expensive array based solutions, which might actually fulfill your requirements far better!
- Research and experiment.