

ISP Improves DR Failover from Four Days to 15 Minutes and Saves \$4.5M

The Problem

A national Internet Service Provider (ISP) runs a wide variety of MIS, Call Center, and Support applications internally to support its critical business operations. Because these applications are hosted at different sites, it is unlikely that more than one application would fail at any time. Thus, the ISP built its Disaster Recover (DR) facility without providing a dedicated set of resources for each application, choosing instead a representative selection of 50 servers from which it could reconstruct any of the applications should they fail¹. As reconstruction would be mostly a manual process requiring a complete operating system and application load on each server, the ISP estimated typical fail over times between 4 hours and two days, depending upon which application failed. Note that all critical application data was replicated from each application to an EMC SAN array within the DR facility using nightly backups.

However, a recent failure of the ISP's primary call center application left 4,000 customer service representatives idle for four days at a cost of \$1M and thousands of irate customers. This experience convinced the ISP that it needed to significantly improve failover for its internal applications. It began evaluating approaches to do so and rapidly narrowed the list to two:

1. Expanding the scope of its DR facility to provide dedicated standby equipment for all applications. Full details of the traditional hardware approach were never put together, but an estimate of "3X the hardware we have now", resulted in a ballpark figure of \$5M.
2. Using Racemi's DynaCenter to instantly reconstruct a failed application using the existing DR assets. The ISP was already using DynaCenter within its DR facility to reuse those resources for QA testing when they were not in use for actual failover². Thus all that was required for the ISP to build a virtual DR facility was a \$150K upgrade to its DynaCenter license for the fully automated "OnDemand" level of performance.

Based upon its favorable experience with DynaCenter in its QA lab, the ISP decided to go with the DynaCenter virtual approach rather than buy additional hardware.

Why DynaCenter?

The ISP selected Racemi's DynaCenter to improve its DR failover for several important reasons:

- DynaCenter installed with minimal additional infrastructure costs and no changes to the existing infrastructure.
- DynaCenter supported the full variety of platforms required by the DR facility including large/small Sun SPARC servers as well as Intel servers running Linux and Windows.
- With DynaCenter the ISP could leverage its existing hardware to provide automated failover for all 15 of its major internal applications, saving an estimated 66% on the infrastructure costs.
- DynaCenter reduced the failover time for all applications from hours and days to less than 15 minutes.
- DynaCenter's remote management capabilities and built-in patch management allowed the ISP to administer its DR facility without any increase in staff.

¹ Note that all of the ISP's customer-facing systems are provided with hot standby equipment to minimize disruptions to end customers.

² See the case study, *Internet Service Provider Saves \$3M Building a QA Lab Out Its Existing DR Facility*

The DynaCenter Solution

The ISP had previously installed DynaCenter within its DR facility so it could perform QA testing on its various applications by reusing its DR assets². In order to convert the existing installation into a fully virtualized DR facility, the ISP:

1. Upgraded its DynaCenter license to the “OnDemand” level to access all of DynaCenter’s automated features including fault detection, automated failover, and automated configuration of the network infrastructure surrounding the servers. The complete upgrade process took five minutes.
2. Copied its existing QA versions of each application so that they could be properly configured with specific network addressing, VLANs, load balancer, and firewall settings to ensure that they would function properly and securely within the production environment. This was accomplished in one day.
3. Spent a week fully testing the DR copies of each application to verify proper operation and proper failover.
4. Wrote an enhancement to DynaCenter that would catch failure events, pause DynaCenter’s automated failover, page appropriate system administrators, and then allow authorized administrators to explicitly approve the failover of an application. Using DynaCenter’s event publisher and integration APIs this took three hours to write and test (with some help from Racemi’s support group).

In a little over one week the ISP had virtualized all of its applications within the DR facility so that any one could be automatically deployed in less than 15 minutes.

The Return on Investment

The tables below compare the **estimated** costs for using DynaCenter vs. the traditional approach of adding dedicated hardware for standby equipment. The displayed DynaCenter costs are the actual costs for the previous installation within the facility plus the additional OnDemand license fees. The costs for the traditional approach were estimated by the ISP as roughly “3X the hardware we currently have” and are thus shown as 2X the QA lab costs (minus some network and storage costs that would not need to be duplicated), but do not include other items that would have been necessary such as software to manage the failover process.

The DynaCenter approach reduced maximum application failover from 4 days to 15 minutes and saved approximately \$4.5M and four months. It managed to pay for itself faster than the alternative approach could even be assembled.

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Costs to Build New QA Lab		Costs for DynaCenter Installation	
One-time Costs		One-time Costs	
50 Dual Xeon 1U Rack mountable server + 3yr Maintenance	\$275,000	9 man days of admin time – 5 (x1) to assist with DynaCenter install, 2 (x2) to train two administrators	\$4,320
10 8-way Xeon Servers + 3yr maintenance	\$844,000	500G added storage space on existing CX700 SAN Array	\$17,000
30 Sun V240 2-way servers + 3yr maintenance	\$510,000	1 dedicated Intel box to serve as MWS	\$2,000
10 Sun V890 16-way servers + 3yr maintenance	\$1,470,000	Cisco MDS9216i to support Windows iSCSI booting	\$22,000
12 racks	\$12,000	DynaCenter Provision License, installation services, support, and training	\$225,000
2 16 port Brocade storage switch	\$44,000		25,000
10 Cisco 3750G-TS Switches	\$150,000		
Additional KVM infrastructure	\$9,000		
Cabling costs	\$75,000		
Installation costs	\$65,000		
Additional backup capacity plus software	\$80,000		
Total One-Time Costs	\$3,534,000	Total One-Time Costs	\$295,320
Monthly Recurring Costs		Monthly Recurring Costs	
Monthly backup costs	\$4,000	DynaCenter Maintenance	\$3,750
Floor space	\$8,000		
Additional power budget	\$10,000		
2 additional system administrators	\$20,000		
Total Monthly Recurring Costs	\$42,000/mo	Total Monthly Recurring Costs	\$3,750/mo
Customer's Estimated Lifetime Costs Over 3Yrs	\$5,046,000	Customer's Estimated Lifetime Costs Over 3Yrs	\$430,320
Estimated Installation Time Before Fully Operational	4 Months	Estimated Installation Time Before Fully Operational	1 Week

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