ScaleArc

Case Study

Microsoft Calls On ScaleArc to Ensure the Continuous Availability and Performance of its Premier Community Website

Challenges

- Move from a physical data center architecture to a virtualized environment that did not support the same level of failover and business continuity
- Migrate from SQL Server 2008 to SQL Server 2014 without rearchitecting the application
- Overcome limitations of AlwaysOn:
  - no load balancing
  - not replication aware
  - no method for detecting failover state of Availability Groups
- Extend failover to support zero-downtime maintenance to streamline patching and testing

Results

- Enabled the team to "go live" in 4 months vs. 9 months with no app changes
- Provides cross-data center failover, without app errors
- Enables zero downtime maintenance and patching for continuous availability
- Enables read/write split with no app changes
- Delivers geo-aware load balancing
- Supports 8x traffic capacity – all servers used

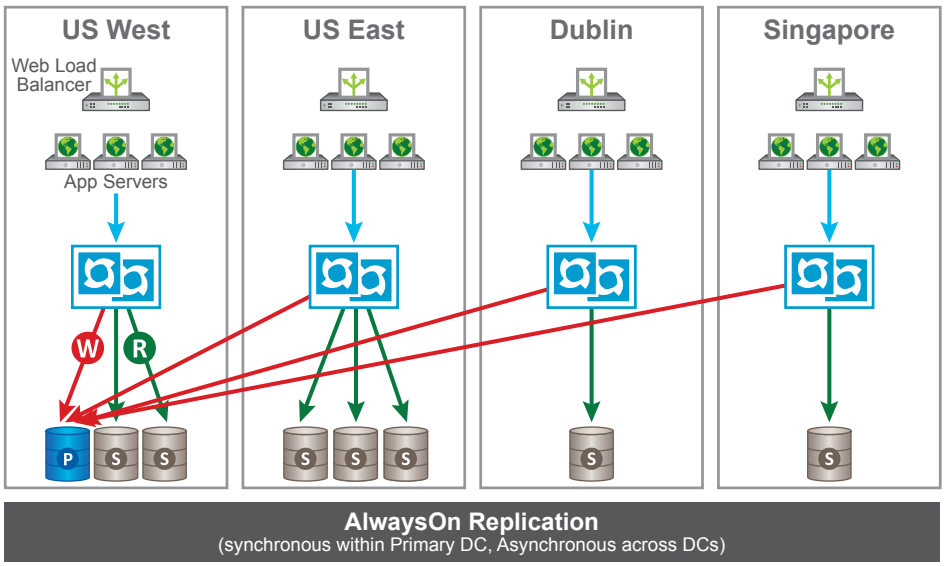
Microsoft

Challenge Overview

The answers.microsoft.com site is amongst Microsoft's most popular community platforms, supporting 1.7 million users a day. As part of Microsoft's "Get Current/Stay Current" initiative, its IT organization planned to upgrade from SQL Server 2008 to SQL Server 2014. At the same time, the organization's server hardware was approaching end of life, so the team decided the timing was right to move to a virtualized environment. All these changes coming at the same time presented the IT team with several big challenges.

Senior services engineer Michael Schaeffer set his main objective as ensuring 24x7 availability across the site's four geographically distributed data centers. The previous architecture relied on Windows Failover Clustering to ensure uptime, but the new virtual environment no longer supported that mode, so Microsoft could not rely on clustering for the Availability Groups Listener failover. In addition, while SQL Server 2014 supports the number of secondary servers Microsoft IT needed across the four data centers, it does not support any form of load balancing.

Schaeffer and his team did not like any of the options for overcoming these challenges – deploying a TCP load balancer or rewriting the app to load balance the reads. Speaking to other infrastructure groups within Microsoft, Schaeffer learned about ScaleArc's database load balancing. software, and the team chose ScaleArc to ensure a zero downtime environment for its website.



Microsoft IT Case Study

"In a word, ScaleArc has delivered flawlessly. They met every requirement we gave them, and the performance has been tremendous."

– Michael Schaeffer
Senior Services Engineer, Microsoft

Technical Details:

- ScaleArc for SQL Server deploys transparently – no app changes, no database changes
- ScaleArc directs traffic from answers.microsoft.com into the SQL Server 2014 deployment
- ScaleArc enables geo-aware load balancing across all four data centers, located in the US, Singapore, and Dublin
- ScaleArc has enabled the community platform team to improve customer experience and ensure 24x7 availability

"Because our website functions across four data centers with over 1.7M hits a day, site availability is our number one issue. ScaleArc provides us with a seamless failover process, providing us with greater levels of uptime than we've ever seen before."

– Michael Schaeffer

ScaleArc

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03/25/2015

Deployment Overview

The Microsoft team had initially estimated it would take 9 months just to update the web application to leverage AlwaysOn. However, with ScaleArc's database load balancing software, the team was able to reduce the timeline to just four months, without re-architecting the app, servers, or network. ScaleArc for SQL Server augments the failover capabilities in AlwaysOn, enabling cross-data center failover that is transparent to the users of the site.

Integration with SQL Server 2014 to Ensure Continuous Availability

When upgrading to SQL Server 2014, the Microsoft team needed to augment the capabilities of the AlwaysOn Availability Groups. The ScaleArc software integrates with AlwaysOn, learning server cluster and status information from it.

ScaleArc's software detects when a primary has failed and maintains client connections and queues inbound queries during the failover. Once the secondary has become the new primary, ScaleArc forwards the queued transactions, preventing members of the Microsoft community from experiencing errors during failover. As a result, Schaeffer and his team have now been able to deliver seamless failover without traffic loss – a capability they've never before achieved. "To date, the performance has been just tremendous," said Schaeffer.

Zero Downtime Maintenance

Because Microsoft's community website is available 24x7 to its customers, zero downtime maintenance is a key capability for the IT organization. In the past, when Microsoft wanted to update a server or install a software patch, the team was forced to take an entire data center offline. Microsoft can now leverage the ScaleArc failover technology to eliminate maintenance windows and avoid any application downtime while keeping servers fully up to date with patches.

Microsoft simply marks a server to be taken offline. The ScaleArc software gracefully removes load from that server, and the Microsoft team brings it offline for patching or maintenance. The IT team then reintroduces it to the cluster, and ScaleArc automatically starts sending traffic to it again. With ScaleArc, maintenance updates can take place even in the middle of the day.

"Being able to move calls and live traffic while keeping all data centers online is a huge win for us," said Schaeffer. "Even with our old clustering implementation, we would experience blips that would cause patches of downtime. ScaleArc has the only technology that allows us to avoid all service interruptions and ensure that our website is available 24x7 to our community."

Auto Failover for High Availability Across Regions

Microsoft needed strong failover not just within a data center but across all four of its geographically distributed data centers. With traditional cross-region failover, database uptime – and therefore answers.microsoft.com – takes a hit. The result is application errors and, more importantly, decreased customer satisfaction.

The ScaleArc software automates and accelerates the failover process for unplanned server failure by effectively steering and load balancing traffic across all four data centers.