

CASE STUDY

TIER 1 CDMA2000 SERVICE PROVIDER REPLACES EXISTING SYSTEM WITH BRIDGEWATER SYSTEMS AAA SOLUTION

BECAUSE IT WAS APPARENT THESE ISSUES — SUBSCRIBER GROWTH, TRANSACTION GROWTH, AND NETWORK LOAD — WERE ONES THAT ALL SERVICE PROVIDERS WILL FACE AS THEY ROLL OUT NEW SERVICES LIKE MMS AND PTT, WE QUICKLY INCORPORATED THIS NEW FUNCTIONALITY INTO OUR STANDARD SOLUTION OFFERING.

BRIDGEWATER SYSTEMS RECENTLY HELPED A MAJOR NORTH AMERICAN

CDMA2000 Service Provider by replacing its existing Authentication, Authorization, and Accounting (AAA) system to create a solution that would take it into the future, giving it a system that can scale to accommodate new services and the resulting increase in subscribers and transaction rates.

The Service Provider had recently introduced both Multimedia Messaging Service (MMS) and Push to Talk (PTT) Services, and there were already signs that the network was going to be strained as new subscribers came on board and transaction activity increased.

Mark Denton, Product Manager at Bridgewater Systems said, “Based on our significant experience in the CDMA marketplace, our team was able to predict some of the issues that the Service Provider would encounter shortly — which weren’t long in coming. This convinced the Service Provider that we could help it ensure it had the robust AAA solution it needed to continue its growth.”

BRIDGEWATER SYSTEMS TESTED ITS AAA SERVICE CONTROLLER IN THE SERVICE PROVIDER'S LAB. THE TEST RESULTS IDENTIFIED THAT THE BRIDGEWATER SYSTEMS SOFTWARE COULD SCALE TO BETWEEN FIVE AND EIGHT TIMES THE EXISTING AAA SYSTEM, ON THE EXISTING HARDWARE!

As the Bridgewater Systems team worked with the Service Provider, they uncovered several key issues that needed to be addressed. It became apparent that the existing AAA system could no longer support the company's growth and increased

system performance and to identify how many transactions it was regularly handling. This was serious, because its new services were causing irregular spikes as well as an overall network load increase, and the Service Provider needed to get a good

To meet the Service Provider's needs, Bridgewater Systems designed a sophisticated, detailed, and programmatic way of determining the health of HAs and assigning HAs. This gives the Service Provider the ability to create complex rules in the Bridgewater Systems policy engine to assign HA requests based on the current loading or availability of the HA, or to even completely offload new sessions from a HA that's run out of CPU capacity or memory or that is handling too many sessions. By providing load balancing across its entire family of HAs, the Service Provider can now ensure that usage spikes do not affect the ability of subscribers to gain access to its services.

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network load — which would lead to a significant network outage at some point in the future. It also became clear that the existing AAA vendor was not able to provide fixes, standards-compliant features, and Service Provider-specific enhancements for the product at the rate the Service Provider needed to handle its growth and increased load. While the majority of the functionality the Service Provider needed was already standard in the Bridgewater Systems solution, the company also developed enhancements to meet the Service Provider's unique requirements.

ADD METRICS FOR INTELLIGENT PLANNING

One key issue was that the Service Provider lacked the ability to monitor its existing AAA system with standard network management tools such as HP OpenView, to evaluate

handle on what this meant for the short term — as well as how to handle continued growth to meet its future strategies.

Simple Network Management Protocol (SNMP) integration was a standard offering in the Bridgewater Systems solution, and the team made some minor enhancements to meet the Service Provider's specific requirements. With complete subscriber and transaction data, it can now identify usage and growth trends, and confidently plan for future growth.

DYNAMICALLY LOAD BALANCE HOME AGENTS

Some of the Service Provider's existing Home Agents (HA) were becoming overloaded in certain areas, which meant incomplete data sessions, with a corresponding decrease in the customer experience and increase in customer care calls from subscribers.

IMPROVE SCALABILITY TO SUPPORT GROWTH

When Bridgewater Systems initially talked with the Service Provider, scalability was not an issue. But within a short period of time, the Service Provider's business continued to grow, and eventually scalability became critical to continued success. In fact, it was at the point where the only option to scale its existing AAA system to meet its vision of the number of subscribers and transactions running over its network was to add hardware in the form of new machines — which can be expensive, time consuming, and extremely disruptive. The Service Provider's existing AAA solution could not make use of more than four CPUs in a machine, so its only option for scaling it was to add large numbers of these smaller machines.

PUSH TO TALK (PTT) INCREASES LOAD

For many Service Providers, PTT services have created unexpected spikes in their network. This is driven by two main factors: regular updates of “buddy lists” and the fact that one subscriber using PTT can wake up between 5 to 10 other handsets, on average creating up to 20 AAA messages. One solution to the buddy list problem might be to increase the update interval, but this creates outdated buddy lists that can render this service almost useless to subscribers. The only viable solution that handles both issues and preserves the usability of the service is to ensure that the network can easily handle these spikes, so that updates can be done with enough frequency to keep the subscriber base satisfied.

Bridgewater Systems installed its AAA Service Controller in the Service Provider’s lab and tested the software in an identical hardware configuration to the existing AAA solution. The test results identified that the Bridgewater Systems software could scale to between five and eight times the existing AAA system, on the existing hardware!

LEVERAGE EXISTING EQUIPMENT

The solution that Bridgewater Systems implemented for this Service Provider is based around the AAA Service Controller, which provides a single platform for AAA across all network types, including CDMA, GPRS, Wi-Fi, DSL, cable, and dial. The Bridgewater Systems solution was designed to leverage existing equipment and infrastructure, minimizing implementation time and minimizing changes required. This included:

- > Integrating the Service Provider’s existing LDAP data store, saving significant time and cost. Without this, the project would not have been financially viable.
- > Installing the software on the existing hardware, minimizing short-term costs and speeding up implementation to a matter of weeks. As the Service Provider rolls out new hardware that can accommodate its growth strategy, the software will be quickly and easily implemented on the new platform and can take full advantage of machines containing up to 24 CPUs.
- > Enhancing the AAA solution to generate accounting records in a format already in use by the existing billing system, resulting in no change in the flow of records.

AN AAA SOLUTION FOR THE FUTURE

With standard product functionality and specific product enhancements, Bridgewater Systems has given this Service Provider a robust AAA system that can accommodate its growth well into the future and support the rapid introduction of new services, allowing it to maintain its creative leadership in data services. According to Mark Denton, “The exercise we went through with this customer clearly identifies our willingness to work with our customers to enhance our solution as networks and services evolve. We’re committed to keeping up to date on trends, anticipating the impacts of these trends, and communicating these issues to our customers to help them achieve success.”

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