



IP & COMMUNICATIONS SOLUTIONS TO PROVIDE BEST IN CLASS SUPPORT TO STAFF & STUDENTS

2005 COMPUTERWORLD HONORS CASE STUDY

EDUCATION & ACADEMIA

VOICE OVER IP HELPS CREATE LARGE REGIONAL PHONE SYSTEMS THAT MAKE EFFICIENT USE OF HIGH-POWERED CALL CENTER FUNCTIONS AND CAN PROVIDE THESE CAPABILITIES TO THE SMALLEST SITE, WITH DYNAMIC ALLOCATION OF LICENSING, GROWTH AND CALL CENTER REPORTING FROM A SINGLE SITE ACROSS MULTIPLE STATES. [20055422]

A Search for New Stories



Robert Carrigan,
Chairman of the Chairmen's Committee

Ron Milton,
Vice-Chairman of the Chairmen's Committee

Dan Morrow,
Chief Historian

SUMMARY

By leveraging Voice over IP the goal was to create large regional phone systems that make efficient use of high-powered call center functions and can provide these capabilities to the smallest site. This includes dynamic allocation of licensing, growth and call center reporting from a single site across multiple states.

APPLICATION

If you have been involved in telecommunications over the last 4 years, you will no doubt be aware that the industry has undergone a transformation. Gone are the days of old telephone systems based on technology that hadn't changed in many years. It's actually a sad day that the digital telephone system is nearing the end, much like the analog systems of decades ago. The sadness stems from technologists having to step out of the comfort zone of the digital telephone system that even today is a very reliable piece of equipment. With the introduction of voice over IP as a new way to transport voice conversations across cheaper and more diverse transport mediums, a fierce competition has ensued lowering service costs and allowing companies to begin to really explore voice over IP as the reason for transforming their data networks. After all the phone system is now becoming no more than a specialized router that can translate between different media and the application that controls the flow.

The Apollo Group is the parent company for several adult education institutions, most notably University of Phoenix, Western International University and the Institute of Professional Development. As the company continues to grow, it has become increasingly important to connect regional campuses and learning centers. This in part fosters a feeling of community, but more importantly it provides the ability to leverage staff at all sites to better handle call flow and virtualizes the inbound call flow across all sites.

In the fall of 2003 the communications group was presented a situation in which two distinct areas decided to form a single region across northern California. In three days we were to design what had come to be known as unified phone system that would function seamlessly across approximately 21 sites and allow even the small 3 person centers full access to live agent tracking, call flow and call tracking.

After 3 days of sweat and tears, a solution had been engineered. It became clear that the strategy, if successful, could be applied to larger multi-state environments leveraging the buying power in bulk and also taking advantage of free falling interstate telecommunication pricing. If the northern California project was successful, it would set the stage for the phone system revolutionizing the data network of the company creating network distribution centers at each regional hub and condensing around 90 separate phone systems into 12 regional systems.

After the successful implementation in northern California, the model was tested on the northwest region, which encompasses 6 states and 24 sites. The end result is that 2 phone systems control 45 sites across 7 states and represent an extended phone system that provides agent tracking, call center capabilities and call flow across all sites.

BENEFITS

In this day and age, disaster recovery is an initiative in the forefront of most business agendas. The Apollo regional system uses the Avaya multivantage platform, specifically the 8700 at the hub and 8300LSP at the remote sites for its gateways. Each remote site off of the hub is survivable. If for some reason a remote site or the central hub were to go offline, each site is capable of standing on its own with full capability. Stage two of the project will have remote sites rehome to other designated hubs if the primary hub is unavailable.

Since the system for all intents and purposes is a single system, it really is irrelevant where an individual chooses to sit or take calls. All sites are treated equal no matter the size and share a central pool of resources housed at the hub site. From the hubs point of view it is one site. Because of this, licensing is only purchased once for the main site, an adjunct used for tracking call flow, etc, is only purchased once. This represented a 45% overall reduction in each sites cost per person to have phone services.

Another great benefit of this system is that all calls within the region are toll free and treated as local. For measured business areas this proves to be a significant savings for large call volumes. Connectivity between the hub and remote site is a full clear channel T-1 and may span several states, but leveraging bulk purchasing has led to monthly rates at or below what would be paid for LD. However in this case it is unlimited usage!

All other benefits aside, the ability to leverage resources across all sites as if they were sitting in the central hub site, and the ability to track performance, outweighs all other costs. Phone systems for many companies are the main source of revenue. The ability to take calls on the first response becomes the difference between profit and loss. By implementing a regional system, a site can go from 2-4 resources to tens of resources to answer customer calls no matter where calls originate.

IMPORTANCE

The Avaya multivantage platform was a key technology component without which we would either have had to compromise our success criteria or forklift the current investment in AVAYA technology. From our standpoint, the phone system is becoming nothing more than a specialized router. What is most important is the capability of the hardware and the power of the software that resides on it.

Two of the most important success criteria were the protection of the current investment and the survivability of the system in the event of a disaster. Prior to multivantage 1 from Avaya, the ability of remote sites to assume total and complete control and function as if they were the central hub site was not possible. This survivability has been put to the test in the northern California design and has proved a success. The other distinct advantage was the ability to recoup licensing from previous investments and leverage that against the purchase of new technology. Although much of the old hardware had to be sacrificed, the software licensing is the single most expensive component of the system.

VoIP is only as successful as the infrastructure that it uses for transport. We made a conscious decision to use the best of both world for our implementation using Cisco as the transport and Avaya as the gateway. This use of technology allowed us to implement Quality of Service (a way to prioritize type of data traffic, namely voice) through the networks, Power to the phones over Ethernet using Cisco powered switches and Avaya gateways to handle call translation and routing to the public switched telephone network. This has been a great success with over 3500 IP telephony endpoints in operation today across the US all using the same technology standards.

These technologies not only let us leverage two solid technologies, but also allowed us to leverage the two skill sets we had in house to create a new converged communications team. This team consists of both skill sets but with a training plan to educate employees in both disciplines. This strengthens troubleshooting and overall knowledge of the big picture as the organization moves into the future. However, it can be said that without either technologies or the superior staff that supports these technologies, the project would not have been a success.

ORIGINALITY

Our unique environment has created a situation in which the phone architecture is defining the future design of the data networks. This design is a blue print for using technology that efficiently virtualizes call flow and call center functionality. Companies not willing to move away from large static call center environments may consider this as an alternative. This also sets the stage to take advantage of SIP technologies whereby IM, Video e-mail can be virtualized in conjunction with the phone system creating virtual contact centers.

SUCCESS

The project had a clear set of success criteria:

- 1) All calls must come into a central regional site for distribution.
- 2) Must have a single call flow for all callers.
- 3) If the central site goes down, remote sites should still take calls.
- 4) If a remote site goes down, calls can be redistributed to other centers.
- 5) Should have the capability to grow with region for 5 years.
- 6) Must be administered from a single site.
- 7) Call measurement must come from a single site.
- 8) Must replace old and antiquated equipment.
- 9) Must include all sites in the region.

We approached the solution in the following fashion:

Investigate business requirements independent from technology, while thoroughly considering inter-dependencies. (Does it make sense?)

Design philosophy:

- 1) This is an integration problem.
- 2) Voice and data should be considered converged.
- 3) The solution should be the precursor for a long-term voice and data strategy.
- 4) Remember business continuity: The system must survive!
- 5) Recycle, reuse and protect the current investment.

By approaching the solution in this manner, not only did we meet the success criteria, but also we put in place a long-term strategy for the company and changed our organization to better align with the business needs in the process.

To recap our efforts, after the implementation of the northern California system we accomplished:

- 1) Implemented a state of the art phone system, but also installed a state of the art campus data infrastructure all for less than the current phone assets in the region.
- 2) We reused licensing on existing assets to drive deep discounts on or replaced the need to buy new licensing.
- 3) We reused and consolidated existing voicemails into a single robust service for the

region.

4) We put in place a system that can grow for 5 or more years, can dynamically move RTU to any campus phone system, and is survivable down to the smallest site in case of disaster.

5) The system is administered and measured from a single site, the hub. The alternative to measure each site independently was twice the cost of implementing the new system.

6) All remote sites and telecommuters share all capabilities of the central site.

Word travels fast and the greatest measure of success is when the pilot project is adopted and implemented on a larger scale. We are in the final phase of implementing this architecture across the entire northwest region of the University of Phoenix and are in the first stages of the midwest and southeast regions as well. The long-term goal is to be complete with all phases in 2006, and this looks very promising.

DIFFICULTY

Projects of this size and complexity always come with their share of hurdles. Probably most important is how, as an organization, did you rise to meet those hurdles. During the course of planning and working out the technical details of implementation we realized that whole scale disruption of the network just wasn't possible. We took a different approach by staging the new system in parallel and then cutting over to the new system over a series of weekends.

The logistics of the implementation were tremendous, but in the process we have become very good at deployment and have refined processes with quality checks and post-mortems for each stage. The northwest implementation has benefited from taking this approach and most hurdles are now simple steps in a process.

Each regional system to date has been sold to the customer, meaning that the business owners are funding the project. The communications organization has been successful to date in this regard by making sure that technology is not deployed just for the sake of technology, but that there is a benefit to the business and that it is fiscally responsible. As our success continues and the customer realizes the benefits of our designs, our ability to work on a larger scale becomes that much easier.

Finally, by using a philosophy of convergence, we had to make a fundamental organizational change to better align ourselves to the technology and to the forward movement of the business. It was clear that having two camps, voice experts and data experts, would not work, or at least would not work in harmony unless an aggressive approach of converging the two camps took place.

Those teams are now integrated and cross training of each group is taking place. This in essence assures that both sides have a clear view and knowledge of the other technology. Over time it makes sense that this will boil down to application experts and hardware experts, but for now both teams are essentially pursuing the converged technology and each member of the team has their place and contribution.