



VOIP MAKES ENGINEERS AT BKF MORE ACCESSIBLE TO CLIENTS

ShoreTel voice system promotes collaboration while cutting TCO in half

You don't land new business if prospective clients can't reach you, and BKF entered the new century with an old phone system that would often frustrate rather than facilitate contact. Callers had trouble getting connected, important voicemail messages ended up in dead-letter boxes, and the PBX manufacturer's service representative never managed to get the auto-attendant up and running.

"We were losing jobs because of it," says Derrick Crandell, director of information technology for BKF, Silicon Valley's largest engineering firm.

The company's 200-plus employees were equally frustrated with the phone system. All but the most basic features were too hard to use, message lights were erratic, and the smallest administrative changes required a site visit from an outside service representative. It was time for a new voice system that could accommodate the frenetic pace of change confronting businesses today.

The purchase price of traditional PBX solutions was prohibitive, and they were too rigid and hard to use. Two of the four PBX resellers BKF consulted didn't even know how to make their systems block 900 numbers. Then, a presentation of VoIP technology opened Crandell's eyes to the possibilities of voice/data convergence. It was a far more flexible solution than traditional circuit-switched telephony and had a much lower purchase price.

BKF was a particularly good candidate for VoIP, because its four locations—the headquarters in Redwood City and offices in San Jose, Walnut Creek, and Pleasanton—were already linked by a full-mesh T-1 data network. In late 2000, VoIP was still regarded by many as a risky, bleeding-edge solution, but adapting to new technologies was nothing new to the engineering firm.

Founded in 1915, BKF had already been around for decades when the local economy started to shift from agriculture to electronics. After weathering all the upheaval of the 20th Century, a migration to VoIP didn't seem all that radical.

Crandell started evaluating VoIP alternatives against a checklist of requirements, and the two largest VoIP vendors at the time were both rejected. Cisco's solution required a pure-Cisco IP environment, including IP phones that were then \$700 each, and early implementers reported reliability challenges. 3Com offered better price points, but its products had a single point of failure and didn't include least-cost routing for toll bypass.

Then Crandell heard about ShoreTel, an IP PBX vendor that could meet all his requirements and then some: reliability that includes site independence to protect against the Bay Area's notorious rolling blackouts; least-cost routing among sites; one unified information database that would enable

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dial-by-name capabilities across the entire network; a software-based technology for easy upgrades; a choice of IP phones or a wide range of traditional handsets; system-wide voicemail; and browser-based management with a single-system view, so that moves, adds, and changes (MACs) could be made internally on demand.

The ShoreTel network went live at all four BKF sites in April of 2001, and the engineering firm has been reaping the benefits ever since.

Clients Get Served Better

ShoreTel's seamless, distributed technology facilitates collaboration across sites, enabling BKF to marshal all its resources for clients. Virtual work-groups are easy to set up and make the physical location of resources transparent to the caller.

When the receptionist position was eliminated in BKF's smallest office, there was virtually no impact on the employees situated there or the clients who interact with them. Calls can be pushed to and from the operators in the other three offices as if everyone were in one building.

"Some of the other vendors could provide this kind of routing," Crandell conceded, "but it was much harder to implement and use."

Using ShoreTel's graphical Call Manager interface, operators can see the presence status of everyone at all four sites and direct calls accordingly. The Call Manager integrates with a central database of employee information, so callers requesting someone by job function or project affiliation rather than by name can be accommodated.

Crandell and his staff were able to get ShoreTel's auto-attendant up and running in no time. Clients can now dial by name to reach any extension at any hour, and from any ShoreGear switch in the multi-site network.

The location transparency helps BKF to leverage its experts more fully, because some clients require that the BKF project managers be local to a specific client job. "When the person's office is not local, we can set up a virtual presence at the office near the client," says Crandell. The client dials a local number, and the call is automatically routed to the BKF employee's desk, wherever it might be.

VoIP Boosts Employee Productivity

BKF employees no longer have to remember or look up extension numbers for colleagues. Using the Personal Call Manager's GUI, they can type in any part of the individual's name and then click on the right listing when it pops up on the screen. Outgoing dialing has been similarly simplified by taking advantage of ShoreTel's integration with Microsoft Outlook. A master contact list was created in a public Outlook folder that is available to everyone.

Operators and other employees can use the Personal Call Manager to self-configure a wide variety of call-handling options. "The consult-before-transferring feature is so easy that people actually use it," Crandell says.

With the Outlook integration, the Caller ID information shows a lot more about who is calling. Voicemail messages can be routed into sub-folders



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associated with specific client projects and stored as WAV files. "Important messages are being archived," says Crandell. "We've never been able to do that before."

ShoreTel's support of such a wide variety of phone types enables a lot of mobility inside the office. "We just buy cheap cordless handsets from Fry's and plug them into the system, and then people are free to move around," says Crandell. External mobility was simplified by modifying cell phones so that they forward unanswered calls to the employee's desktop. This eliminates the need to deal with two separate voicemail accounts and sift through duplicate messages.

Streamlined Operations Generate Rapid ROI

When the ShoreTel network was first installed, no voice-traffic prioritization was done to the Cisco 2610 routers, and there were no complaints about voice quality. However, BKF is constantly moving big CAD files around the T-1 network, so Crandell and his team added a margin of safety by giving voice traffic enough prioritization for five or six simultaneous calls.

Moves, adds, and changes can now be handled internally with a few mouse clicks, eliminating outside service calls and saving a minimum of \$150 per incident. Maintenance and upgrade costs have been decimated, and least-cost routing has reduced BKF's toll charges by more than half.

Technically, the old phone system was supposed to be sending direct 3-digit interoffice calls over the T-1 lines for free, but the service provider often charged for them. BKF could track these charges down and get reimbursed, but the time and resources expended in the process offset a lot of the savings.

"We don't have to worry about this anymore," says Crandell. "And the toll bypass was very easy to configure. We now understand our voice system and can control it."

Crandell initially was backing up the ShoreTel data directory manually as a safety precaution. The data in the old PBX had crashed a couple of times, forcing the reentry of more than 200 employee extensions. However, the reliability of the ShoreTel platform gradually put his fears to rest, and he now lets his ArcServe system automatically back up the ShoreTel data directory along with all the other servers on the network.

A good part of the ShoreTel system's reliability comes from its unique distributed architecture. As ShoreGear switches are added at new sites, they immediately start communicating with each other as peers. Each one is a complete call processor that can operate as a standalone voice system if it gets cut off from the rest of the network—an ongoing fear in a region subjected to rolling blackouts. Similarly, if one switch were to fail or be removed from the network, its peers at other sites will cover for it and maintain uninterrupted service.

After getting hit twice by rolling blackouts, BKF recently installed an offsite data center at an AT&T collocation facility in Redwood City. This "colo," which costs \$5,000 per month, is being entirely funded by the return BKF's investment in the ShoreTel system. It cost less than half as much as the voice platform it replaced, and is saving BKF more than \$65,000 per year.



"You install it and it works"

BKF is using ShoreTel's remote teleworker solution to connect a trailer facility being set up onsite at a Stanford University project. Connected via either a T-1 or a VPN-over-DSL link, it will function as a direct extension of the ShoreTel system, with access to all the same voice features as any BKF desktop.

"We were almost led away from ShoreTel because they didn't offer turnkey installations, and we weren't telephony guys," recalls Crandell. "But it was so easy, it made us wonder what the telco experts were feeding us all those years". When our old service rep came by to hook the PA up to the ShoreTel system, his jaw was on the floor.

"You install it and it works."

Conclusion

Flexibility is the key to survival in the volatile boom-and-bust economy of today's Silicon Valley. With its distributed architecture, easy implementation, browser-based administration and management, and intuitive user interface, ShoreTel helps BKF to ride this roller coaster of uncertainty and leverage more resources in the service of clients.

"The ShoreTel system has paid for itself already," sums up Crandell.