Behind-the-Firewall Hosting Service Underpins Unocal Indonesia’s Deepwater Operations

Customer: Unocal Indonesia Company
Location: Jakarta

In 2002, Unocal Indonesia approached Landmark for assistance in building a whole new technical computing environment. By midsummer 2003, Landmark and its strategic business partners had successfully implemented a highly sophisticated data and application hosting solution behind the firewall at Unocal Indonesia’s headquarters in Jakarta.

Despite all the cutting-edge technologies, however, this was not just a technology handoff, but a complete in-sourced service solution. Landmark services included consultative needs analysis, solution design and implementation, as well as onsite application support and hosting center management for the next three years.

“Upstream IT environments have become unmanageably complex in recent years,” says Desmond Kong, Landmark’s Regional General Manager for Asia-Pacific. “Landmark’s hosting solutions can take much of that burden off our customers’ backs, and let them focus on what they do best—finding and producing oil and gas.”

“This is a substantial in-sourcing contract for Unocal,” states Louis Rothenberg, Chief Technology Application Manager for Unocal Indonesia. “It has taken a great deal of effort to get to where we are now. I’m hoping that in the coming months we’ll be able to forget most of the day-to-day operations of the system. A year from now, I’ll be quite pleased if reliability and performance remain as solid as they are today.”

UNOCAL’S EXPANDED OPERATIONS – Unocal Indonesia Company, a subsidiary of Unocal Corporation, has been actively exploring for, developing, and producing oil and gas in Indonesia for more than 35 years. The company signed its first Production Sharing Contracts (PSCs) with Pertamina, the state energy company, in 1968. Since then, Unocal discovered one of Indonesia’s largest offshore oil and gas fields and made a number of other significant finds, including Indonesia’s first commercial deepwater discovery. By 2002, the company had drilled more than 110 exploratory and appraisal wells in the deepwater offshore East Kalimantan, gaining substantial expertise in deepwater drilling.

In 2003, Unocal Indonesia has interests in 10 PSC areas, and operates 7. Its 2003 deepwater exploration program includes a major drilling campaign, using a state-of-the-art rig that can penetrate deeper targets. The West Seno field, discovered in 1998, is the company’s first deepwater production project, and the first field in Southeast Asia to be developed with tension-leg platforms (two, in fact). Production just began in August. According to its Web site, Unocal has its eye on becoming the leading deepwater exploration, development, and production company in Indonesia.

With deepwater activity continually increasing, it’s no wonder Unocal Indonesia decided in 2002 to enhance its operations. “We’ve had considerable success in deepwater East Kalimantan,” says Rothenberg. “And we’re planning to expand our deepwater efforts elsewhere in Indonesia. So, in fourth quarter 2002, the decision was made to expand and refocus our operational capabilities to include a traditional Shelf business unit in Balikpapan and a Deepwater unit at our headquarters in Jakarta.”

Historically, all of the company’s oil and gas operations have been handled out of its Balikpapan office on the east coast of Kalimantan. But, according to Rothenberg, the complexity of
current and anticipated deepwater projects, and the need to work more closely with oil company partners and the government, made Jakarta the most appropriate place to expand. However, Unocal’s Jakarta office had no existing geology and geophysics infrastructure to support up to 50 geologists and geophysicists who would begin working there in July 2003. Not only did the company need to redesign two entire floors in its building to accommodate the new business unit, it had to build a new technical computing environment from scratch.

Instead of taking on the challenge alone, Unocal Indonesia turned to Landmark.

NEEDS ANALYSIS & SOLUTION DESIGN – “In 2002, Unocal Corporation signed a three-year global agreement for access to Landmark’s full suite of G&G technology,” Rothenberg explains. “Because we had already successfully partnered with Landmark for the applications, it made sense to approach Landmark for the systems to run them.

“We didn’t want to do it the old fashioned way,” he adds, “where every geoscientist had both a PC and a UNIX workstation. The idea of a Linux-based thin-client solution was very appealing to us, for all the obvious reasons: lower cost, higher performance, and the ability for our users to run all their applications from one desktop computer. We felt Landmark had the expertise and resources in this area to deliver the right solution more efficiently than anyone else. Besides, we didn’t have much time. We knew we couldn’t pull this off on our own.”

Rothenberg began conversations with Landmark in November 2002. “When we closed our global access agreement,” notes John Powter, Landmark Country Manager for Indonesia, “we enshrined in that document some guiding principles on the quality of relationship both companies hoped to foster. We wanted a new level of strategic alignment ‘based on honesty, integrity, excellence, and trust.’ This hosting solution in Jakarta was built on that foundation. The whole process evolved very collaboratively.”

Powter, Kong, and Charlie Gell, Landmark’s Business Development Manager for Southeast Asia, the technical lead for this project, met with Unocal, listened carefully to their needs, and began exploring options involving Linux and behind-the-firewall data/applications hosting. “I gave Charlie a vision of how I’d like to see things work,” says Rothenberg, “and he came back with a sketch of the system. Then there was a lot of back and forth dialogue, until we arrived at something that we liked. If we beefed up one component, for example, it might have very little financial impact, but could really enhance the robustness of the solution.”

“Unocal was looking for a cutting-edge system that the Deepwater organization could rely on for the next three years,” adds Gell. “For application hosting, Linux was attractive not just because of its cost and performance, but also for its easy scalability.” To help design the solution and write up a formal proposal with all the schematics, Gell drew upon the expert services of Landmark’s Houston-based hosting team, in particular Don Dunbar, the system’s chief architect. “We have some very sharp people, with considerable experience in E&P hosting,” says Gell. “This was no cookie-cutter approach.”

Landmark also consulted with business partners, especially IBM and Network Appliance, to make sure all the right questions were asked, the latest technical alternatives were evaluated, and local resources would be available to assist in meeting Unocal’s tight deadlines.

CUTTING-EDGE HOSTING SOLUTION – “Landmark didn’t sell Unocal Indonesia a single piece of hardware,” Powter explains. “We structured this solution 100 percent as a service.” Landmark owns the hosting center. Unocal pays a fixed monthly subscription fee for user access, ongoing system management, and onsite application support.

Once the technical requirements were agreed on, Unocal and Landmark negotiated the service-level agreement, worked out all the contract issues, and submitted their plans to the Indonesian government for approvals. By end of May 2003, Unocal’s hosting solution was finalized, and the implementation phase ready to begin. At this point, Landmark brought in Steve Gunn, an experienced Managing Consultant based in Aberdeen, Scotland, UK, to head up the team responsible for implementation planning, obtaining all the hardware, installing and configuring systems onsite, loading geotechnical data and three dozen applications, as well as acceptance testing—all in roughly seven weeks.

“The implementation team did a great job,” Rothenberg stresses. “Steve walked in here, handed me a project plan, and delivered—on
schedule, according to plan. What can I say? That's exactly what you want a good project manager to do. Many of his team members were from Landmark's Houston office, working in an unfamiliar environment. But they got in here, and did the work. It was pretty impressive to watch."

“This was Landmark's first major behind-the-firewall hosting center deployment,” says Gunn. “We've done specialized projects for other clients, but never on this scale with technology this cutting-edge in this short a timeframe. It was a massive undertaking. We brought people and equipment in from the four corners of the globe. Unocal Indonesia now has one of the most technically advanced G&G hosting solutions in the world.”

According to Gunn, key new technologies underpinning Unocal's hosting center include IBM's Blade servers, which utilize a modular approach ideally suited to a Linux application-hosting environment controlled by Sun's GridWare technology. Users access the system through Landmark's Team Workspace® portal from a thin-client PC on their desktop. "When a user requests a process to be run," says Gunn, "the Linux Gridmaster automatically allocates that process to whatever Blade server is currently doing the least work. Advanced networking separates Blade processes into distinct groupings to serve different systems, including Windows functions, standard Linux applications, and a small Linux cluster dedicated to seismic processing."

A dual Network Appliance F960 data storage system provides about 10 TB of raw storage space in a clustered configuration. This solution also provides primary backup and restore of the systems data through Network Appliance's advanced SnapRestore software. Finally, IBM's LTO tape library is capable of storing up to 200 GB of information (400 GB compressed).

“All these systems have built-in redundancy,” adds Gunn, “so no single component failure can shut down operations. But with custom-designed networking, the overall system continues to deliver maximum performance. All data transfers go through very large network pipes, so traditional bottlenecks between clients and servers are negligible here.”

The hosting solution’s modular design also means any part can be scaled up independently, or all components together, as needed. “We can very quickly accommodate any growth in Unocal’s business or increase in user demand,” says Gunn.

Two weeks prior to implementation, Gunn arrived in Jakarta to ensure all the proper planning steps were taken. The first hardware and implementation team members began to arrive near the end of June. In little more than two weeks, five racks of equipment were installed and configured in the new computer room in Unocal Indonesia’s office building. Landmark, IBM, and Unocal professionals worked side-by-side to build the hosting center and address issues as they arose.

One week into implementation, the first SeisWorks® application, was up and running. Then, 3.7 TB of data were transferred from Balikpapan and upgraded for use in Landmark’s R2003 (Linux) release. Acceptance testing began July 16. On Friday, July 18, Unocal signed off on the testing. Monday morning, July 21, the system went live—right on schedule. Unocal Indonesia’s deepwater geologists and geophysicists have been actively using the system since that time.

“This is a very active office,” says Rothenberg. “That's why it was critical for Landmark to deliver a totally reliable solution, on time. First production in West Seno occurred just weeks after the hosting center went live. We have one rig drilling development wells on West Seno, and another rig drilling deepwater exploration wells right now. We couldn't afford any downtime.”

Although the new hosting service has been up and running for only a few months, Rothenberg is pleased with performance. “It's still early, but users so far have given the system a thumbs up and say they like the speed,” he reports. “They're able to do their work—that's what really matters.”

What about cost—one of the other highly publicized advantages of Linux technology, which makes up a significant portion of Unocal's hosting solution? “Indonesia can be an expensive place to operate,” says Rothenberg. “Doing something like this here may be more expensive than it would be in the States. But the real question in my mind was: how much would it have cost to do this with old UNIX technology? Without going into the actual numbers, the fact is, we're getting a whole lot more advanced technology for a little less money. So we're pretty happy.”
LOOKING TOWARD THE FUTURE – Unocal Indonesia has had a Landmark onsite support consultant in its Balikpapan office for quite some time. As part of the hosting solution for its new Deepwater unit, the company now has two full-time onsite consultants in Jakarta as well—James Farmer for application support, and Kamarul Ismail for hosting systems operation, maintenance, and support. “Both of them were part of the implementation phase, and now they’re providing day-to-day support, which has worked out quite well,” Rothenberg notes. “They’re doing a great job.”

Charlie Gell points out another type of support, beyond local expertise, that Landmark can provide. “The way the system is set up, our application hosting specialists and network engineers in Europe and North America can log on and troubleshoot remotely,” he says. “So Landmark’s worldwide virtual team is available to fix any problems that should occur.”

That same remote access capability offers Unocal a possibility for further expansion in the future. “A lot of aging UNIX equipment in Balikpapan needs to be replaced within the next year or so,” says Rothenberg. “Knowing this is coming, we’re starting to discuss our options. Remote hosting from Jakarta could provide the Balikpapan office another viable alternative, should they decide to take it.”

At least one Jakarta user has logged on to the hosting center remotely. “I was able to bring up my 3D SeisWorks project with basemap, seismic, and perspective views using a 26.4 KB modem and my laptop in a hotel room,” says Joe Oravetz. “I’m impressed.”

“I knew from day one that pulling off a bleeding-edge project like this would be a big challenge for Landmark, given our time frame and technical constraints,” says Rothenberg. “Since they’ve been successful here, I suspect they’ll be able to implement similar systems elsewhere in the world.”

According to Jonathan Lewis, Landmark’s Executive Vice President of Operations for the Eastern Hemisphere, innovative hosting center solutions represent a significant part of Landmark’s customer service strategy for the future. “Ultimately, technology is just an enabler,” says Lewis. “The real value we bring is in solving customers’ fundamental computing challenges—improving the management of their data and applications, providing more efficient access for their end users, with superior levels of service, at reduced levels of cost.

“Obviously,” he concludes, “no pre-determined mix of technology and services could meet every customer’s needs. That’s why we offer a scalable spectrum of hosting services—from in-sourcing, like Unocal Indonesia, to co-sourcing and outsourcing.”