Universities Embrace Multi-Space Technology

Case Study

Single space meters and gated systems are replaced to reduce costs and deliver new user convenience

A Growing Campus

Servicing the parking needs of large campuses has been one of the biggest challenges facing universities as the number of vehicles seeking a parking space continues to rise. Multi-space technology is one of the solutions that has been implemented to address these challenges.

Life on campus at one of the oldest post secondary institutions in the United States has changed dramatically over the years with a rising student population now reaching over 25,000 undergraduate and 11,000 graduate students attending classes across a 419 acre campus. Servicing the parking needs of such an expansive campus has been one of the biggest challenges facing the university as the number of vehicles seeking a parking space continues to rise.

To date, this university has almost 24,000 parking spaces located in garages, surface lots, and along campus streets. In the past, payment for parking was exclusively accommodated with pre-paid permits, single space parking meters, and gated systems; however, as the university entered the new millennium, a greater emphasis has been focused on replacing gated parking entrances and older forms of automated technology with multi-space technology from Digital Payment Technologies (DPT).

Parking Challenges

Reducing labor time and improving parker convenience were two of the major reasons behind this university's search for new parking technology. Prior to 2002, over 300 aging single and double head parking meters were spread across campus costing the university hundreds of hours in maintenance and collections, labor time that could be better served for other purposes. Daily coin collections were very time consuming with the labor required to collect at each meter, sort the coins, and then bundle the coins for delivery and deposit at the bank.

Beyond addressing these problems and limitations, this university was looking to the future and considering the benefits they could offer parkers with new capabilities such as flexible short-term rates, the ability to accept coupons for discounted or free parking, and support for the university's Blackboard campus card.

The Research

To address the issues, the university's Parking Department developed a multi-year plan for the campus and reviewed all technologies that had been in place for at least seven years. The Parking Department then spent the next three years building business cases for the construction of new facilities and the acquisition of new technologies. The ideal case was to find hardware that could be paid back in under a year and facilities that could be paid back in less than five years.

In selecting new technology, multiple factors had to be taken into account—hardware costs, infrastructure costs for electrical, communications, and possible lighting upgrades, labor savings, speed of operations, and customer satisfaction. In addition, there are the different philosophical differences between gated and non-gated systems that may have a serious impact on customer service and flexibility to handle non-cash or reduced cash transactions. These factors often do not get included in the university's cost/benefit analysis, but are essential to the operation of the business.

To evaluate vendors for the first multi-space pay station to be deployed on campus, the university submitted an RFP to a range of vendors focusing on buying criteria that included:

- Ease of maintenance with modular internal components
- Internet Protocol (IP)-based Internet connectivity
- Ease of use facilitated through intuitive and logical screen displays and payment processes
- Demonstrated product reliability
- Vendors with a demonstrated ability to continue improving the product over time by delivering "next generation" hardware and software
- Vendors that already had a presence in the Southern California market

After reviewing several alternatives, the university selected the Intella-Pay pay station from DPT in 2002 as the Intella-Pay best fit these requirements.

"DPT and the Intella-Pay met all of our criteria for a pay station," states the Associate Director of the university's Transportation Department. "A major point in DPT's favor was obviously the fact that it had successfully deployed over 50 pay stations at a major California University. DPT was also the only vendor who had demonstrated an ability to work with IP-based Internet connectivity when others were only offering dial-up connectivity with a point-to-point data circuit."

After testing a few Intella-Pay units of its own, the university then moved to DPT's next generation parking pay station, the SHELBY, in 2005. The SHELBY pay stations were quickly followed by the deployment of the LUKE pay station for the university's on-street operations.

Rapid Expansion

The LUKE and SHELBY pay stations have been rolling out across the university's campus for several years now. In configuring these pay stations, the university selected pay stations supporting coins, bills, and credit cards while being powered by solar panels or direct AC power where available. All pay stations have been networked using optical fiber as it can be connected into their own network, pulled over long distances, and avoids interference by electrical motors. The online services these fiber connections provide include real-time credit card processing, online reporting, and the ability to add time at any pay station.

The most recent deployment of DPT pay stations has been at this university's 512 space Pay-by-Space designated parking area within an existing parking structure. Construction for this multi-level garage started in 2005 and opened in the summer of 2006. The technology review for this facility concluded that multi-space technology provided greater benefits over traditional gated systems.

"Universities are very forward thinking when it comes to evaluating and deploying parking technology," states Chris Chettle, DPT's VP Marketing. "We often find our campus clients

enjoy new technology benefits several years in advance of the municipalities who are only now beginning to see that multi-space pay stations offer significant benefits over traditional gated systems or single head parking meters."

Lessons Learned

The move to multi-space technology didn't go forward without some key lessons learned along the way. Issues were minor at first with the relatively small initial deployments, but became much bigger issues to be addressed when the pay stations were rolled out into bigger facilities like the 512 space Pay-by-Space parking area.

One of the first issues identified was that the majority of students purchased the all day rate while only using part of the time. Students arriving later in the day then began to figure out that the majority of available spaces were already paid for until 6.59 a.m. the next day so they stopped paying by taking advantage of the time already paid on the space number. A citation couldn't be issued for these negligent parkers as the reports showed the space as paid for the complete day.

Given the university didn't want to give up the benefits of a Pay-by-Space operation, the policy was changed to require both a Pay-by-Space number and displaying the ticket on the vehicle dashboard at all campus locations. This change also resulted in the need to purchase between 20 percent and 30 percent more pay stations to reduce the distance for students now needing to walk back to their vehicle to place a ticket.

While overall costs for deployment were much less than gated systems, the university had underestimated some important budget items that are now standard in any future deployment. Specifically, new considerations were needed for lighting in the garage facilities so that the pay stations could be seen from a distance and also address safety considerations for parkers paying at night. Additional signage to direct people to the pay stations and provide support on how the pay stations work was also needed. Finally, additional budget considerations had to be made for the online service costs to take advantage of features such as real-time credit card processing, online reporting, and proactive alarming.

Benefits

After more than six years of working with multi-space technology, the university has identified a range of benefits provided by the LUKE and SHELBY pay stations over traditional single space and gated systems.

Reduced Collections & Maintenance Time
The reduction in the number of single and double head meters from over 300 to 170 meters has resulted in significant savings in labor time for the university's field technicians. Collection time has been reduced by 50 percent with more than 80 percent of the transactions now conducted with credit cards as opposed to coins.

Maintenance time has also been reduced by 25 percent as there are fewer meters to inspect each day. These activities have also been assisted greatly with proactive alarms from the pay stations to cell phones, pagers, and e-mail when service conditions such as coin jam need to be addressed.

Lower Labor Costs
The university has also been able to reduce the number of open manned kiosks on the weekend now that there are so many LUKE and SHELBY pay stations on campus to provide self-serve options. While it was initially thought that enforcement costs might go up with the removal of gates at some facilities, the university found it could use the same enforcement personnel from other areas of the campus to adequately service the new pay station deployments. There is also the added benefit of more citation revenues for the university as gated systems prohibited citation issuance.

Lower Installation Costs
Multi-space technology is significantly less expensive than gated systems when considering that gated systems are up to five times the capital cost of multi-space pay stations and involve installations requiring expensive underground gate sensors and the running of conduit for cabling. This can be especially expensive when trying to deploy gated technology into an existing facility without the proper infrastructure already in place.

Multi-space pay stations such as LUKE and SHELBY can be quickly installed and don't

require any external cabling to operate. In addition, this ability for a fast deployment can be especially beneficial when changes need to be made quickly.

Increased Mobility
Gated systems tend to slow down access in and out of a facility. By allowing parkers to park where they want and pay for their parking at conveniently located pay stations, the mobility of vehicles at the university has been greatly enhanced.

Higher Revenues
When single space meters break down, the revenue for that space is lost until the meter is repaired. University multi-space pay stations have eliminated this revenue loss as any pay station can now be used to buy parking for any space. Revenues have also been enhanced as parkers are more inclined to purchase longer amounts of time with the increased time options and greater convenience of credit cards.

Greater convenience
The flexibility to program multiple rates and offer more payment options has been a big hit with students. Unlike technology that would have to

be considered for the kiosks, credit card data security is not an issue with LUKE and SHELBY as both products meet all of the requirements outlined by the Payment Card Industry's Data Security Standards. Students have also adapted to the new LUKE and SHELBY pay stations quickly as students are already very familiar with using this type of technology in many surface lots around the city.

"University students love the multi-space pay stations as they can now use their credit cards, there are more short-term parking options, and there are no gates to impede their arrival and exit at our facilities," comments the Associate Director. "Everyone is seeing the benefits, so I think we can say that the transition has definitely been a big success."

Moving into the Future

The awareness of the benefits of multi-space technology over gated systems and single head meters is causing a number of universities across North America to shift their technology plans. As of 2008, this university has 18 LUKE and 25 SHELBY pay stations servicing eight separate parking areas. In each campus, there

are still a few areas controlled by single space meters and gates, but these are primarily areas where the parking area is small, thereby making it less economical to enforce manually.

In looking to future plans, the deployment of additional pay stations would involve opportunities that take advantage of customer demand in locations currently only satisfied by kiosk parking sales. The university would also like to expand the functionality of its new and existing pay stations to include features such as the distributed management of pay station data and configuration, acceptance of the the university ID card and real-time connectivity to this university databases using DPT's Web Services. With such potential, parking and running operations on campus with multi-space meters just keeps getting easier.

About Digital Payment Technologies

Digital Payment Technologies is a leader in the design, manufacture and distribution of electronic multi-space parking meters, parking management software, and online services for the multi-billion-dollar parking industry. The company's products provide complete financial tracking, control and reporting for parking revenue collected by municipalities, universities, parking management companies, and national parks, from customer payment through to bank deposit.

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