

by Jon Inge

Feeling Lucky?

Casino hotels put a lot of work into making sure you get just lucky enough.

The urge to gamble is as old as humanity. As the old saying goes, give a man an animal and he'll make a pet of it. Give him two, and he'll race them. Ever since the first mammoth race gamblers have been looking for new ways to place bets, and gaming operators have been looking for new ways to let them win – just often enough to keep them coming back.



be linked to share much larger jackpots, increasing their attraction. Most important, it allows users in a frequent-player program to insert their ID cards into the machine and have their playing statistics recorded automatically. This so-called cashless or TITO (ticket in/ticket out) playing allows the casino operators to amass considerable detail about their more valuable clients' playing habits and preferences.

They especially want to encourage the ones who like to play most often or for the highest stakes, and so developed sophisticated customer relationship management (CRM) tools to identify and reward them appropriately.

Of course, human nature being what it is, both sides have been looking for ways to get an unfair advantage over the other. And so casinos use increasingly sophisticated security measures to keep the players honest, and gaming commissions impose strong controls to ensure that casinos don't take unfair advantage of the players.

Casinos themselves, of course, necessarily focus on the players above all else, and continue to use the latest gaming technology to attract them with new offerings. All other considerations have historically been secondary, leading to the proliferation of discounted rooms, meals and drinks to encourage regular players, and to sophisticated controls to manage this comp accounting.

Casino hotels, however, now often position themselves more as full-service destination resorts and meeting places. For some, especially the major properties in Las Vegas, their hotel/resort operations have grown to match the gaming side. Be-

cause of this dual nature, their hotel systems are often stretched in terms of integration, functionality and sheer scalability. These are not small properties.

This article takes a look at the gaming systems in use at many casinos today, as well as at what extra demands typical hotel systems must satisfy when installed in a casino hotel.

Gaming Technology, Slot Management

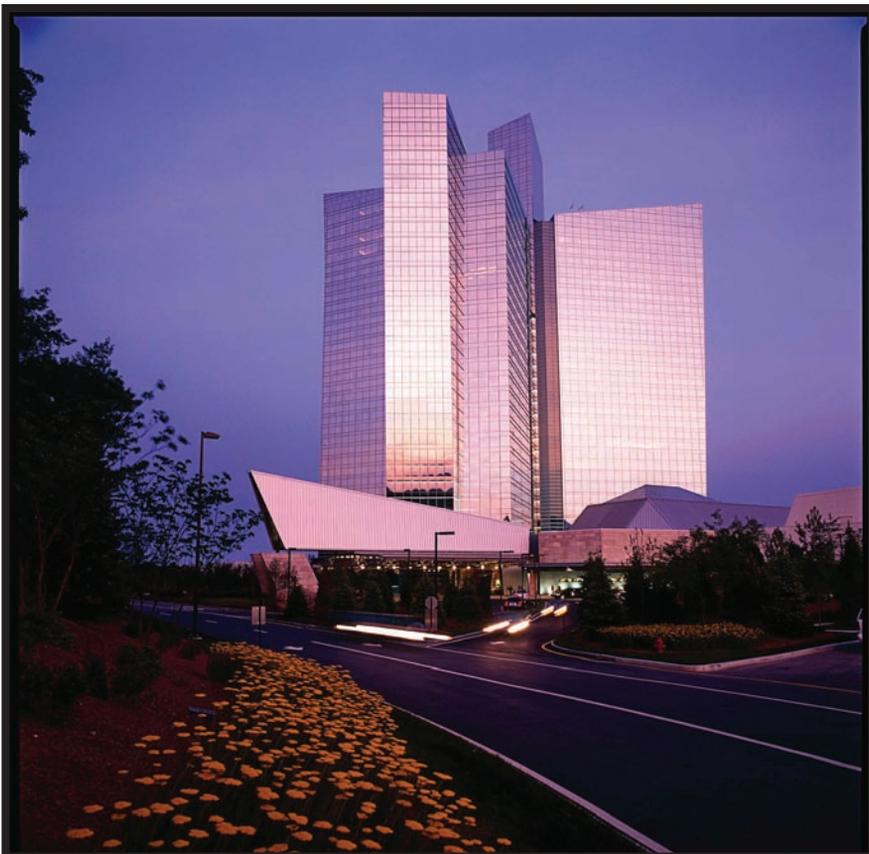
One look at the floor of any U.S. casino is enough to tell you that slot machines—or their modern video equivalents—still rule the gambling scene here. Other regions may have different preferences, but slots are a universal feature of casinos everywhere, and for good reason. They're simple, easy to use, open to players willing to bet anything from a penny upwards, pretty addictive and highly profitable. A long way from the old mechanical one-armed bandits, modern video consoles offer a far wider choice of games to maintain players' interest, and all are interconnected and electronically monitored.

Their networked nature not only allows management to track activity at each machine remotely (as well as monitor potential problems), it also allows groups of machines to

As you might expect with the explosion of video games in general, casino consoles are morphing into more generic game-playing machines, with more features aimed at keeping the player involved for as long as possible. Models are appearing with wide-screen displays, often with touch screens; players can often play sub-games within the main screen or choose to bring up different games from a menu if they tire of the default displayed. Some have more comfortable booth-style seating, and some let players access casino/hotel/entertainment information or their player profile, contact management, order drinks, ask the valet to bring their car around and so on, all without leaving the machine.

The network of machines has major advantages for management, too, not just in collecting player and machine statistics but also in letting them customize the default games displayed on the machines in different parts of the casino floor at different times of day, to present the most attractive options to the mix of guest market segments in house at the time. Prizes and incentives can also be adjusted on the fly to suit the demographics of the players using each machine.

On a wider scale, casinos can now rent or lease a range of remotely hosted games from vendors offering them on a software-as-a-service basis, downloaded



Maximizing Success at Mohegan Sun

Many of the success stories about casino hotels feature the larger chains, which can leverage their size and multiple locations to justify some very sophisticated—and expensive—data collection and analysis tools. When you're a single, independent operation you have to really focus on how to use your resources for maximum effect.

One property doing an outstanding job is the Mohegan Sun casino in Uncasville, Conn., which last year was named as one of *InformationWeek's* Top 500 IT Innovators. "A key factor in our success has been the players club points program," said IS Director Dan Garrow, "especially that it's so completely integrated into the whole complex. Club members can redeem their points immediately after they're earned and can do so anywhere, for hotel stays, food and beverages, spa treatments, shows, at the more than 30 retail outlets, and even at the gas station."

Clearly this can only happen with exceptional integration between all systems, which include Bally's ACSC casino management, Agilysys' LMS and MICROS 9700 for POS. Ensuring 24/7 uptime is also key, of course, and Mohegan Sun runs duplicated IBM System i servers in two data centers 500 yards apart and with back-up generators and different power feed lines. "The hardware's very reliable, but the software applications do need to come down regularly to install upgrades. It's sometimes a challenge to do that on one server at a time while continuing to run operations on the other, but careful planning minimizes interruptions."

Mohegan Sun is very focused on providing an attractive gaming environment with a great 1,200-room hotel and wide range of entertainment and other activities. As a result it's built strong loyalty among its patrons; most of the time over half the players on the casino floor are players club members, and the significant majority of hotel rooms are either complimentary for really significant players, or are paid for in players club points.

"It's all based on making sure that every system we install adds value to the core operation," said Garrow. "We try not to leave anything to chance."

to networked generic consoles. As with all such arrangements, the benefits of this flexibility, immediate access to the latest games and the assurance of highly qualified technical support need to be balanced against the ongoing cost of the service.

RFID Chips, Coded Cards

Compared to the individual, technical nature of slot and video console play, table games offer the other extreme of a high-touch group-play environment. But beneath the surface, literally, modern technology is significantly changing both the management of the games and the collection of individual player statistics.

Two technologies have been introduced to provide fast, accurate tracking of cards, wagers and game play: RFID wireless transceivers and optical scanners. In the public eye RFID chips have generated many headlines as the hot new tracking tool, albeit with over-hyped concerns about tracking personal buying habits and physical movements. In casinos they are being embedded in individual gaming chips.

All chips issued to a player are instantly scanned and recorded against the player ID card. Scanners under the felt at each player's position at the tables record each wager as chips are slid across. Early implementations had speed issues and could sometimes be fooled by a chip hidden in a player's shoe or purse under the table, but the latest versions have a tighter focus and are remarkably fast and accurate. Another technique with the same goals is Bally Technologies' optical tracking, using scanners to read invisible bar code stripes on the edge of each chip. Playing cards can also be tracked, usually by the same optical technique reading invisible coding strips on the edge of each card as it's slid out of the shoe. A different approach from Tangam Gaming uses video cameras over the table to identify and record the cards in front of each player, though since this only tracks face-up cards it doesn't provide quite such data.

Benefits

The prime benefit usually given for encoded chips is that they prevent the use of counterfeit tokens, certainly an important factor. However, the CRM and security value of all the data recorded through their use is potentially as significant.

Consider the following benefits of encoded chips:

- Tracking all players' bets at each game makes sure each receives the proper credit for their play. If they are already in the player rating system the play points will be recorded accurately. If not, the pit boss will be alerted to their play level, will know how to rate each player accurately and can set them up in the points program as appropriate. It's human nature to notice the extremes of behavior, the loud, flamboyant big spender and the quiet, minimum-bet player. With automatic tracking the steady but worthwhile player in between isn't overlooked.

- Once you know a player's regular playing habits, it's easier to spot unusual behavior. Card counters, for example, often change their wagering approach as the end of the deck is reached.

- Dealers' statistics can be monitored for speed, accuracy and habitual mistakes.

- All play data can be linked to the overhead security cameras digitally recording every play. If there's any dispute, or any concern over specific player behavior, the video tapes can be replayed in parallel with data on every play made during the game, card by card, wager by wager.

- Anyone trying to cash in chips that weren't issued to them will raise an immediate alert. Exceptions can be made for small groups of friends and families, of course, so that chips issued to one can be returned by others. Chips given as tips to dealers and cocktail servers can also have their ownership transferred at portable scanners at the tables.

RFID chips aren't cheap, typically costing \$1 to \$1.50 more than the regular variety, and are not yet applicable to all table games. But Wynn, for example, believes in their value strongly enough to have opened both its Las Vegas and Macau properties with them. Given the huge volume of chips in daily use that's a massive bet on their ROI – and the house isn't accustomed to being on the losing end of big bets.

All of these factors make for a more accurate and more secure operation, but some people will always attempt to beat the system no matter how long the odds against them. It's important that the casino staff, especially the dealers and pit bosses, not rely completely on technology to tell them what's going on. They still need to be students of human behavior, be aware of what the players are doing right in front of them and remain open to their feelings when something just doesn't feel quite right.

Customer Relationship Management

The ability to track individual slot machine player's gaming habits has triggered the massive growth in customer relationship management (CRM) that's the key to modern casino profitability.

Harrah's Total Rewards program is the classic case study. Launched in 1998, it pioneered the ability to recognize players at whichever casino they visited within the chain and to send them special offers very specifically tailored to their visiting and playing habits. The significant increase in repeat business this generated has been well-documented, and most casinos now consider CRM and its accompanying data analysis and business intelligence to be the most important technology they use.

Of course, competitive pressures mean that more complete data on guests' and players' activities is always sought, and that more effective tools are always needed to understand and analyze its ever-growing volume. The former demands much tighter integration between all guest-facing systems in a casino-hotel environment to collect more data from the PMS, POS, spa, golf and other activities.

However, especially for casino-hotel operations that allow guests to redeem their player points for dining and other activities, integration is equally important to ensure that all systems are immediately aware of a guest's current entitlement level. Comping dinner for a big spender is a nice perk; having him run into a problem at the restaurant because the system hasn't been updated with his current worth negates the good will and leaves a bad impression.

Data Analysis

As for data analysis, the sheer volume of data available makes the use of visual tools almost mandatory. One example is Compudigm's data-mapping tools, which Harrah's adopted at an early stage (see figure 1) to analyze its slot-machine activity in conjunction with the player card data. This showed the machines and games that were most popular with each type of player (analyzed by gender; ZIP code and other demographics), how players moved from one machine to another, which machines are played at certain times of day by different players, and so on, all helping to fine-tune the layout of games on the casino floor for maximum effectiveness.

Other casinos have adopted this and similar tools, but they've often been customized to the individual chain's needs and have been quite expensive. Recently, however, Compudigm began offering in a modular version in a remotely hosted format, which should also allow smaller operations to take advantage of this powerful analysis.

Standards?

Clearly, integration between multiple different systems in a casino environment is a key factor in gathering complete, timely and accurate data. Given the number of different vendors' games, casino and player management systems that interact in a casino hotel, it's no surprise that integration suffers from similar standards issues as found in the hotel world.

Paralleling the work of Hotel Technology-Next Generation (HTNG), the Gaming Standards Association has made considerable progress in persuading the various gaming and casino management system vendors to cooperate on joint standards for system interoperability. As with HTNG, there have been initial successes and steady progress, but there is still much to be done.

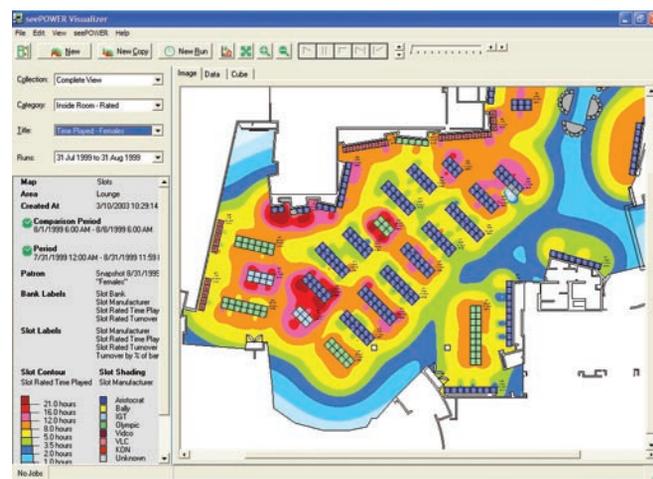


Figure 1: Data mapping for slot machine activity on a casino gaming floor. Each machine is identified by the vendor of the game in use. The color contours show the number of hours of play by female rated players over a month-long period. *Courtesy of Compudigm International, Ltd.*

Hotel Systems in a Casino Environment

Long considered just a place for guests to sleep when they're not gambling, the hotel side of casinos has become significantly more important, especially in Las Vegas and Atlantic City. These major centers expanded their target audience by presenting themselves as all-inclusive destination resorts, where gambling was just one of the attractions alongside extravagant shows, spas, golf courses and so on.

MGM MIRAGE now sees the resort/hotel side of operations contributing at least as much as the casinos, and anyone who's attended a conference at Bellagio or The Venetian, for example, can testify to their extensive convention space. The facilities still feel like they stretch for miles even after you've walked through several acres of casino floor space to reach them. Outside Las Vegas and Atlantic City, though, casinos are still the more important side of a combined operation.

So what are some of the differences in how the casino hotel operations use typical hotel systems? Three important factors are specific gaming-related functionality, a much

higher degree of integration between systems and the sheer scale of the operation.

Functionality

The biggest functionality difference is that casino-hotel property management systems must handle complimentary accounting. Individual staff members are set up as comp authorizers able to give discounts on rooms, F&B and other services at various levels according to the guest's playing statistics. Limits are set for each authorizer on how much they can comp for each transaction type, both per transaction and in total per day. This is basically a complex extension of typical PMS package plans which post charges over pre-set limits to the guest's folio.

Just as guests can have multiple sub-folios to record different categories of their charges, multiple comp accounting sub-folios can track different types of incentives. And just as PMS package plans are starting to let family members pool their various package allowances, some casinos allow a player's comp points to be redeemed by other family members or friends.

While comp accounting modules can operate as a stand-alone module within the PMS, in most casinos the player management

system is the master record for all resort-wide comps, and therefore good interfaces to hotel and outlet posting systems are critical.

Other casino-hotel differences include the more frequent use of multiple payment methods for different guest folios, and a higher percentage of guests using express or video check-out to by-pass the front desk when leaving. As a result, it's very useful to be able to schedule individual check-outs at specific times. Folios also need to be kept open for continued charges after check-out, so the rooms can be turned in good time for new arrivals while still allowing guests to continue gambling and using other hotel activities. Once again, good integration with other systems helps provide back-up data for the inevitably higher rate of disputed charges.

Point-of-sale systems are much the same as in any other F&B operation apart from the





Moving Forward at MGM MIRAGE

sheer number of outlets to be served. However, they often have two or three extra interfaces on top of the usual PMS and credit card links. One is to player management systems in casinos where guests can use their points to pay for meals and beverages; another can be to control dispenser guns and pour-monitoring systems.

Further, linking the POS system to the digital video security camera that casinos install over every cash drawer considerably helps resolve anomalies. If a review of POS transaction data shows that one manager seems to comp drinks even when off duty, or one bartender consistently receives 20 percent tips, calling up the video stream at the time of the individual postings will show just who was actually using the POS keyboard at the time.

Inventory and purchasing systems are likewise similar to standard hotel products, just used in a more complex environment. Large casino hotels can easily have 20 to 30 F&B outlets and a high number of kitchens and storerooms. Given the size and complexity of the operation a higher than usual emphasis is placed on inventory and cost control. Inventory and purchasing systems must be able to step up to the necessary levels of functionality and performance.

Integration

The integration issue was touched on earlier in connection with the player rating and CRM systems, but it goes well beyond just making sure that the PMS is aware of a player's standing. As more casino guests take advantage of the hotel/resort facilities such as F&B outlets and spas, and many properties allow payment for services at least in part with frequent-player points, the resultant need for a much tighter integration between all systems is obvious.

Since the gaming and hospitality operations have to work closely together, and comp authorizers in particular need fast access to systems on both sides, it's a major convenience to have a single sign-on for users. At MGM MIRAGE, for example, MICROS'

As one of the best-known gaming hospitality companies in the world, every move by MGM MIRAGE is closely watched for clues as to what it does that's out of the ordinary.

"It's not so much that we do things differently," said Tom Peck, chief information officer and senior vice president, "but the size of our multiproperty operations and the need to capture as complete a picture as possible of our guests' preferences and experiences makes it really critical to focus on system reliability, scalability and interfaces.

"Interfaces have become increasingly important as we've expanded our focus from gaming to include destination resort activities such as spa, entertainment, fine dining and retail shopping, not to mention conferences and conventions. As the revenue from hotel operations catches up with our gaming income, it becomes essential to track as much information as we can from each of these areas, and to that end we're working closely with both HTNG and GSA to improve data integration between the different platforms."

So which systems are the most important to MGM MIRAGE operations? "Obviously the PMS is the core system for the hotel side as it coordinates so many other systems' folio charges," said Peck. "On the gaming side it's still the slot floor system because it sees such high utilization, especially with cashless TITO (ticket in/ticket out) playing."

But data analysis and business intelligence are right there too, both to feed the player rating/CRM system and to maximize floor efficiency.

What's the story on the PMS side? "We have several solutions and we've used Agilysys' LMS on IBM hardware for many years," said Peck, "and remain enthusiastic about its performance and stability. But we also wanted to look at a centralized solution for its advantages in security, support and integration, and are implementing a Web-based PMS (MICROS' OPERA) on a centrally hosted Oracle database.

"So far, so good, but it's important to go step by step and evaluate each stage to minimize the risk. Success lies in keeping the odds on your side."

OPERA PMS shares single sign-on access with player management systems from Bally Technologies, IGT and Aristocrat.

Sharing a single guest ID number is clearly a great advantage, both for guest convenience and for ensuring data accuracy for management (see figure 2, page 18). In MICROS' OPERA, any activity on a guest's comp accounting PMS folio immediately updates the casino system. And Wynn, for example, issues a single player ID gaming card that guests can also use as a payment card for PMS (MICROS) and POS charges, and as the guestroom door key thanks to a centrally managed locking system (Timelox).

Scalability

When you're dealing with more than 5,000 guestrooms and over 250 POS terminals in a high-turn, 24/7 check-in/check-out operation, systems absolutely must be capable of handling massive traffic volumes with very fast response times. This is one reason systems based on IBM System i (formerly AS/400 or iSeries) hardware, such as Agilysys' LMS, have been so successful in the gaming market; they have proven reliability and horsepower to spare. Performance is also why there's a preference for keyboard-driven systems rather than those that force users to use a mouse; it's simply faster to use the short-cut keys. Duplicate servers with automatic fail-over are also common, to minimize potential downtime as far as possible.

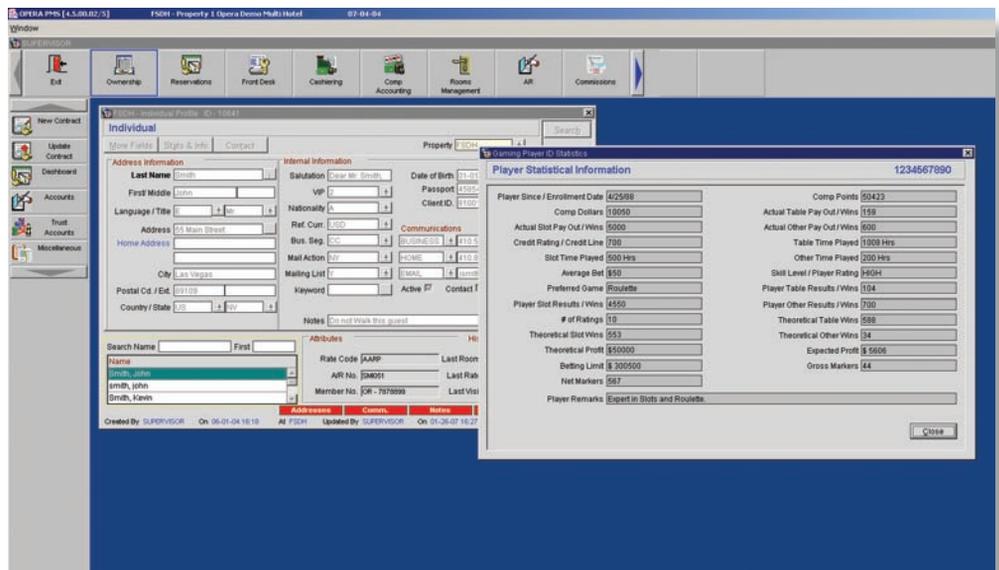


Figure 2: A set of typical player statistics pulled up from a hotel guest's PMS profile. All data is imported in real time from the casino system to ensure its accuracy, and is used by a comp authorizer to set up appropriate levels of charge discounts for the guest. The Member No. in the profile attributes section is common between the PMS and casino system. *Courtesy of MICROS Systems, Inc.*

In this as in other markets, other vendors are determined to make a mark and are establishing a noticeable presence. MGM MIRAGE, for example, is installing a gaming-enhanced version of MICROS' Windows-based OPERA PMS on an Oracle database—and doing it in a centrally hosted configuration that will eventually manage 20,000 rooms at several properties from one site. That's serious scalability. Other vendors have taken alternative routes. InfoGenesis, for example, installs multiple servers to handle interactive traffic at multiple outlets, consolidating data back to a central server for interfacing to other systems, and Bally Technologies has released a line of Linux-based casino systems.

Apart from supporting vendors using its operating systems, Microsoft is focusing on its Biztalk systems integration, on improving business intelligence via better analysis of the data collected from the different systems, and on the guest experience. The latter involves both potential guestroom applications for Xbox and Zune technology linked to other systems, and the staff's use of Windows-based hand-held units for faster access to guest-service information.

IBM, of course, isn't standing still and recently announced a new vertical industry program (VIP) focused exclusively on the hospitality gaming arena. The first fruit of this VIP is a casino-in-a-box suite comprising applications from Agilysys (PMS, inventory/purchasing), Bally Technologies (casino/games management), InfoGenesis (POS) and Infinium (financial and human resources), all fully-integrated on the System i platform.

Revenue Management

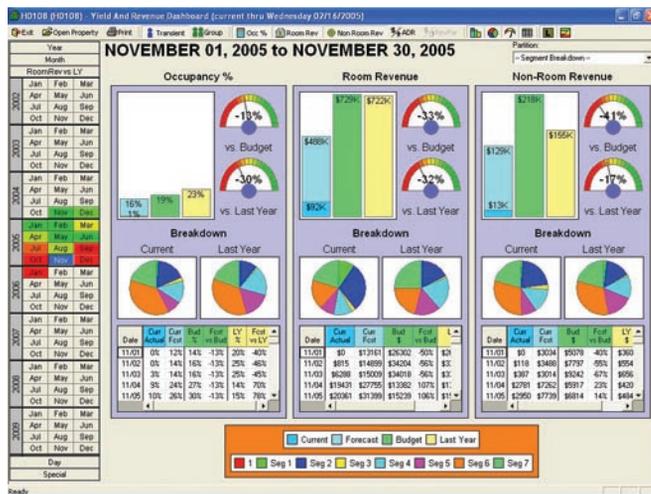
The traditional hotel revenue management system (RMS) balances potential group room sales against the loss of revenue from individuals expected to be in house at the same time, often via interfaces with both the S&C system and the PMS. Increasingly these calculations include ancillary revenue from meeting room rentals and catering, as well as spa, golf and other activities.

Casino hotel RMSs such as Rainmaker have two other factors to consider. One is that the properties are typically big enough to accommodate very large groups and conventions in one building. This is a significant advantage to the group organizers, but it also limits their negotiating position since it means they don't have many alternatives. The property can thus sometimes hold out for a group rate that's actually higher than the transient rate.

The other, of course, is the impact of gaming revenue. Group rates can be further refined through estimates of the group's likely expenditure in the casino, taken from historical averages for their market segment or sub-segment. The bigger factor, though, is the impact in individual guest rates.

Here, casino hotels have the advantage of access to guests' detailed history, especially gaming history, via the player ID provided when booking. It's straightforward to calculate frequent players' likely gambling expenditure per stay—the theoretical wins figure—based on their known

Figure 3: Revenue management in a casino hotel requires balancing even more revenue segments than a resort or convention property. A dashboard can present complex comparative information clearly to help revenue managers allocate rates and rooms appropriately. *Courtesy of The Rainmaker Group, Inc.*



preferred game, typical wager and typical length of play. That can then be used to offer each guest a specific room rate and discounted services package, such as food, beverage, limo pick-up, for example, for the dates he or she has in mind. The ancillary revenue is also part of their profile, of course, but for regular players their casino spend usually far outweighs all other categories. (See figure 3.)

Infrastructure

Casinos aren't immune to the growing obsession with wireless communications either. Several have experimented with using wireless PDAs for guest check in and for housekeeping updates, and many have installed cell-phone extenders to ensure that guests can communicate inside their buildings. Nevada recently authorized gaming on mobile devices in casinos' public areas, letting guests play blackjack, baccarat, poker, slots and some proprietary games on wireless, hand-held devices in lobbies, lounges, restaurants and at poolside.

All of this complicates life for the wireless infrastructure which needs to handle soaring traffic demands in a secure-transmission mode. The security staff also needs to be very aware of what devices are communicating within the gaming areas, since anything out of the ordinary might just be someone trying to gain an illegal edge through surreptitious communications with players.

A casino in London, for example, recently caught some players doing their own video tracking of the cards dealt during games of poker. Tiny cameras concealed in their sleeves transmitted details of all cards dealt to a colleague in a van outside, who'd then communicate back to them via miniature earpieces on how to play. Fortunately tools

such as Audiotel's CasinoGuard scanner can monitor Bluetooth, Wi-Fi, cellphone, wireless video and other data streams to detect and pinpoint the unexpected.

The Regulatory Influence

One inescapable fact of life for systems vendors in this environment is the tight security demanded by the regulatory authorities. Each gaming system itself is rigorously tested and authorized to ensure that it offers fair odds to the players and that its data security is as watertight as possible.

Hotel systems typically don't need this level of approval since they don't store sensitive player information; they just look it up in the gaming systems as needed. Nevertheless they do require clear, fine-grained user access security functions to limit who has access to precisely which types of guest data under various circumstances, and they must still be approved by the gaming commission in field trials.

This isn't so much a technical issue as a timing one, since any failure during testing will send them back for correction, making it that much harder to be nimble in introducing new market-dependent features. All this puts higher demands on the development staff to keep the right levels of security in mind, and on the quality assurance staff to make sure the system is completely ready before submission for field trials.

International Considerations

Gaming is far from a U.S.-centric phenomenon, and the international market brings its own challenges. Each region shows distinct preferences – in Macau, for

example, table games are favored more than slots – and, especially in Europe and Asia, players tend to have a greater reluctance to being tracked by a CRM system. Double-byte software is essential to display graphically based character languages such as Chinese. However, while this is widely available it does complicate the interfaces between the many systems with each providing part or overlapping parts in the guest profile.

There's also the issue for multinational corporations compiling a central player profile database as to which version of the data, in which language, is the master. International chains have had that problem for a long time with guest history databases, but it's even more complex with more systems supplying data input.

As a result, international casino hotel operators strongly prefer to partner with vendors with the same international presence, understanding of local, multicultural needs and experience with complex integration to enterprise-level systems. Given that casino hotels account for a relatively small number of properties despite their highly visible profile, the barriers to entry for vendors trying to break into the market are high indeed.

Casino hotels have many of the same issues and the same systems as hotels, and see many of the same trends—an imperative need for better integration, independent bodies working to improve vendor cooperation, the growing use of remotely hosted systems and a strong awareness of the value of CRM for guest recognition and targeted marketing.

Apart from the additional, fascinating technology of the gaming systems themselves, the highly regulated and security-conscious environment places significant extra demands on the operation. The massive scale of many of the casino hotel operations also poses unique challenges in systems performance, and mandates a special focus on visual tools for effective analysis of the mountains of data collected.

You may be feeling lucky, but the successful operators in this highly competitive arena leave nothing to chance.

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