



Central System Technology Past and Present

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Background and Perspective

- Understanding GLI - our perspective and view of technology
 - GLI provides technical consultation and testing services of gaming equipment and systems
 - Clients: Gaming Control Boards, Tribal Gaming Commissions, Riverboat, Lotteries, and Pari-mutuel Gaming Agencies.
 - Serve as technological advisor on current technology and what is to come.
 - Assist regulators through compliance testing of thousands of gaming equipment submissions.



Today's Discussion

- A layman's view of Past, Present, and Future approaches to how gaming is regulated with emphasis on the role played by central control monitoring systems.
- How other jurisdictions operate their central control functions and their approach to high tech monitoring vs. solely manual monitoring.
- Policy decisions were made based on the type of technology available at the time. Important because as technology changes, some devices, systems and peripherals are not upgradeable, leading to more policy choices as to regulator forced upgrades.
- Good news: you are starting in 2005 or later - not faced with these choices. Newly devised network technology benefits YOU now much more than a few years ago.



Defining Terms is Important

- Central Control System(CCS) - A central system under the control of the State where accounting data, security exception reports, and software verification can be initiated.
- Includes ability to manually or automatically disable gaming devices based on automatic triggers or upon an event.
- Required under the Pennsylvania law.



Defining Terms is Important

Slot Machine, Gaming Device, Video Lottery Device - all same meaning

- a device where a player plays, by wagering something of value.
- plays the game by the use of skill or chance,
- may entitle the player to something in return. (Consideration, Chance/skill, Reward).

Today's slot machines are, at their heart, computers. The rest is window dressing.

- have video screens, plastic spinning reels, top box displays, various types of electronic, mechanical, or electro-mechanical display types.
- for today it doesn't matter what the theme or object of the play of the game is, except that the games are all microprocessor controlled and the data from the game play are sent immediately to the on-line accounting system.



More Definitions

- Ticket In/Ticket Out (TITO) -The ability to receive a voucher from machine that represents winnings. No coin or currency. Has ability to insert voucher into another machine for using those funds for play.
- Progressive -machines linked to a single jackpot. Portion of the bets placed into increasing pool of winnings. Patron wins pool if wins top award on that link
- Wide Area Progressive (WAP) - machines at multiple locations are linked together via external computer system.
- Bonusing- (marketing tool) the ability of a system owned by the licensee to pay additional win to the player above and beyond the stated payable during certain periods of time.
- Promotional Award - (Like bonusing) player given the award based on factors other than game play. (Bus Promotion, Birthday).



First generation





Second generation





Third generation





Fourth generation





Traditional Gaming Industry

Traditional approach to gaming regulation of technology

Surround it, Lock it, View it

- On-site systems, in some cases, not permitted to be hooked to other systems outside the casino.
- Software upgrades must be done on-site.
- Slot machine software hand validated, sealed, locked into machines.
- Official Count: count rooms locked, sealed during count with manned security.
- Systems used as a “check” against actual hard count.
- Any machine allowed because protocol and connecting to a monitoring computer not required.



Traditional Casinos

Traditional Casinos

- o Ticketing, Cashless Wagering and other system driven events (bonusing, progressives, nationwide player tracking, cashless wagering and ticketing including TITO) somewhat delayed because strong system requirements and protocols not required and therefore not implemented.



Non-CCS Environment

Older view of regulated casino technology

- Regulation and monitoring of machines was property based. Systems not required by regulation.
- Systems were put into existence by operators because floors were too large to handle and for marketing reasons.
- New Jersey has had systems in place for a few years and Nevada has not required systems until recently.
- Casino Systems now in virtually every major casino in North America--Nevada still does not require them for everyone.
 - Central systems at each location produce reports
 - Tax revenue and statistics are based on actual count in the count rooms (hard and soft) and reports are reviewed by the Commission.
 - Works where there is 'something to count'.
 - Requires additional on-site oversight, auditing, and relies heavily on internal controls and tracking of money.
 - Requires on-site software verification (manual sealing and inspection)



Non-CCS Environment

Older view of regulated casino technology

- Central computer systems did not exist at the time. Reliance on manpower because no other choice.
- Required armies of manpower to
 - Check machines
 - Follow the money
 - Ensure state receiving appropriate revenue
 - Carry out security and surveillance



Local Linked Systems

Local Systems are fine, but lets link them!

- Some regulatory agencies have requested automated data to cut down on reports and get timely information. Allows for faster tax and revenue collection.
- This model gives the State a snapshot of each system at each casino. Data is only as good as each individual system.
- First good attempt to get data more quickly.
- Example: Louisiana
- Central Computer linked to each venue's central computer to request and receive reports daily, or even quicker.
- Not necessarily in real time but provides good data reporting.
- Currently does not remotely control/shutdown devices. Requires machines to be manually inspected.



CCS Systems: The Beginning

Central Control Systems

- o Started in 1989 in South Dakota as a response to a highly-regulated gaming network across the State. Control needed but difficult because of so many sites and large geographical expanse.
- o 1990 to 1993 other States follow in the dial-up on demand data collection.
- o Oregon first state to go online - every machine connected in real time. Monitoring and live data received and lottery moves to run the entire system themselves including buying and repairing machines.
- o Canadian provinces add dial-up capability (ALC, Quebec, Manitoba).



CCS Systems Today

Racinos (Central Control Venues)

- West Virginia on-line track venues/Dialup local facilities (local systems as well)
- Rhode Island (on-line, player tracking system at track)
- Delaware (on-line, but local system as well)
- New Mexico (on-line, but local system as well)
- Maine (on-line, but local system as well)
- Australia, Sweden, Italy...more



Early CCS Systems

Why did they occur

- Most early systems came from “Lottery or Revenue” departments.
- Needed to give the same high levels of accountability that Lotteries were accustomed to.
- Lotteries needed to reduce expenditures and manpower but not security.
- Video Lottery systems became the precursor to what we have today.
- In contrast Casino Industry saw systems in a property-based accounting and control context.
- Lotteries had much more experience in defining protocols and implementing major system procurements. Gaming boards did not have this infrastructure.
- Telecommunications infrastructure already present



Why CCS?

Advantages

- Lotteries familiar with remote checking of software “over the wire”; further reduced manpower.
- Lotteries expert in designing better, bulletproof systems that were accurate, accountable and auditable, dating back to multi-jurisdictional lotteries (Powerball) and wide on-line sales.



Why CCS?

Advantages

- o Lotteries interested in finding technological solutions to manpower costs.
- o Lotteries because of experience in validation and tickets are first to implement ticketing for winnings and the ticket validation process becomes mainstream.

Disadvantages

Machines must use proprietary protocols, therefore machines limited because not all new games had the required protocol and therefore some of the best games in casino markets not available, leading to reduced revenue (addressed in 2005).



Why CCS?

Security

Accountability

Integrity



Security Features of a Central Monitoring System

- **Real-time event reporting**
 - Events: monitoring of all doors, coin/bill jams, hopper or printer errors, communications or internal game failures, EPROM signature and internal RAM memory errors
- **Ability to set specific security levels and actions**
 - Machine access rights controlled by the State
 - System access and functions restricted and controlled by the State
 - Security breach or significant event notification controlled by the State with automatic real time system response
- **Ability to track and monitor both routine repair and maintenance operations and potential security breaches or potential cheating**
 - Casino operations staff can be tracked by the State and unauthorized machine intrusions can easily be separated from routine machine access



Accountability

- **Complete meter information in real time from every machine in the state**
 - Meters track all individual game information (coin-in, coin-out, credits played, credits won, jackpots, hand pays, bonuses, # of games played, # of games won, # of times doors were accessed)
- **Audit trail of all financial reconciliations and the ability to produce individual invoices**
 - By venue, by manufacturer, by game type, or by individual games
- **Internal reconciliation and meter integrity checking done automatically**
 - Will provide reports and audit tools to identify, track, and resolve meter imbalances or player financial disputes



Integrity

- Remote validation of all gaming machines connected to the system.
- No machines can be played prior to enrollment and integrity verification checks (EPROM signature checks).
- Signature checks may be conducted either automatically or at anytime the integrity of the game may be in question.
- Integrity checks done prior to obtaining meters to ensure corrupt information is not sent to the system.



Additional Features Provided by Central Control Systems

- Daily reports showing any machine meter imbalances to daily reports detailing any broken/disabled/non-reporting terminals
- Log files showing all configuration changes or other system user activity
- Data warehousing and custom reporting features are available



CCS and Casinos Converge

Lottery World Meets Casino (Racino)

- Late 1990's -Track-based gaming emerges. Race tracks expanded from small number of machines to 2000+.
- Tracks introduce their own central system for progressives, bonusing, promotional, player tracking systems and analytical marketing.
- Tracks want the latest games available in Nevada and New Jersey. Want to free themselves from proprietary protocols that require new game development/changes.
- Lotteries drop the ideal of "Video" in video lottery for spinning reel games, hoppers, and main stream casino games. In some markets Machines are indistinguishable from NJ/LV machines



CCS and Casinos Converge

Casinos want to meet the Lottery World (system centric)

- Casinos “bite the bullet”: go to reliable onsite systems that rival banking systems. Needed because system uptime is now mandatory because cashless and TITO is implemented.
- Casinos and regulators begin relying on local systems because certain revenue can’t be seen, touched, and counted. Electronic transactions are the norm.
- Casinos and regulators want to move away from manual machine verification and re-think deployment for manual functions.
- Casino companies begin to merge causing companies to have casinos in the far reaches of the world, need to have data linked as well as player tracking done on a worldwide basis.



2004 and beyond

- Racinos are more likely to be owned and operated solely by Large Casino Operators instead of States.
- Operators understand the need for State regulators to centrally monitor and have control over the gaming devices. State regulators understand that proprietary protocols may not be the best way to go since it limits the sharing of data and the types of machines that casino may have.
- State Regulators understand that operators have the expertise to know what their players want and to give them the flexibility to meet those goals without unnecessary regulation.
- Operators agree that the time has come that they use required heightened technology so that Regulators can do their job most effectively and efficiently.



2004: Casinos & CCS Worlds Meet

- More...
 - Operators want to make sure that the State's system is accurate.
 - Operators understand that the state's revenue is computed directly from data from the machines and that the State's count is the "official" count, subject to audit and reconciliation adjustments.
 - Operators want to cater to customers and give them the "full experience"
 - Operators want to be the first line of defense against cheating, tampering and illegal activity but recognize regulators role in monitoring. Operators must agree to strict adherence to internal controls and accept responsibility when problems occur.
 - Operators want to analyze data in a data warehouse for marketing purposes to analyze how to be more profitable. Regulators now want to do this as well to help in regulation.



2004: Casinos & CCS Worlds Meet

- **More...**

- Midnight floor changes become the norm because of electronic signatures.
- Central System uses wide open protocols so that future system changes and upgrades are easier.
- New approach will also allow for any type games to be added now and in the future.
- Will allow for a central point of accounting state wide.
- Will assist State Regulators in controlling approved versus non-approved gaming devices and components.
- Will give State Regulators an accurate picture of accounting and security state wide on a real time basis.



Some of the Changes

- New Mexico Gaming Board (racino) adds SAS protocol support so that any casino device can now be approved and attached. New Mexico also allows for casinos to have their own system.
- Atlantic Lottery Corp. (ALC) moves towards SAS protocol.
- West Virginia begins to talk about moving to open protocols so that machines do not become outdated and can be upgraded.
- Maine in procurement process to allow for State wide central system to be operated by vendor with local track having their own system and RFP and law requires open architecture and protocol to maximize vendor participation.
- Delaware allows casino to have their own system for accounting and player tracking and now testing implementation of SAS.
- Introduction of BOB and SuperSAS Ethernet protocols so that devices can be connected directly to systems using TCIP (intranet addressing like PC's).



Pennsylvania Gaming Control Board

QUESTIONS?