

GAMING STANDARDS



A S S O C I A T I O N

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## Setting New Standards for Gaming Performance and Innovation

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## Executive Summary

Gaming patrons are increasingly members of the Internet generation, accustomed to highly sophisticated visuals, instant access to all forms of entertainment and information, and immediate results or feedback. Games and systems must be able to support these needs and deliver a fresh, innovative experience—yet the complexity associated with upgrading games, enterprise gaming systems, and peripherals has kept the industry from achieving its full potential. By establishing standards for communication protocols that enable these systems to work together, the Gaming Standards Association aims to greatly simplify gaming operations and management, help operators reduce operating costs, and unleash the full potential of networked gaming floors to increase patron loyalty and casino profitability.

## The Name of the Game? Complexity.

Gaming networks represent some of the most complex technology implementations in existence. Comprised of hundreds of games, enterprise gaming systems, and peripherals, these networks have evolved to accommodate a wide variety of communication protocols that enable data to be gathered, tracked, and reported from the gaming floor to back-office systems. Unlike modern Internet Protocol (IP) data networks however, today's gaming networks are largely built on proprietary, vendor-specific communication protocols.

For example, simple uni-directional 'polled network' technology enables back-office systems to receive data from the gaming floor. In addition, there are dozens of proprietary standards for applications and devices designed to manage accounting, security, player tracking, wide-area progressives (WAPs), bonusing, and ticket-in-ticket-out (TITO). At one point, there were almost 50 different protocols being used and supported within the gaming industry.

Historically, manufacturers viewed their protocols as a unique competitive advantage, giving them the opportunity to capture a high percentage of operators' floors and back-office systems. Today, Internet Protocol (IP) technologies and standards-based communication protocols from the personal computing, wireless communication, and networking worlds are enabling new features and capabilities that can help operators improve efficiency, customer loyalty, regulatory compliance, and their competitive advantages. However, the traditional gaming protocols and existing networks are not designed to support today's requirements for delivering rich media, bi-directional network communication, or automatic updates. As operators seek to upgrade their offerings, it is becoming increasingly difficult and expensive to integrate additional proprietary protocols within existing gaming floor installations.

## Long Deployments Delay Revenue

New versions of enterprise gaming systems or games often create communication problems, including issues between systems and games from the same manufacturer. When vendors change basic protocols or use incomplete implementations of an existing protocol, significant incompatibilities often show up when operators test new games or systems prior to deploying them on the floor. The result is often extensive, frustrating troubleshooting while issues are identified and resolved. Large deployments of new systems or games can represent business disruption—each day lost before new games or systems are brought online represents lost revenue. Even when the Slot Accounting System (SAS) messaging protocol became widely used for gaming enterprise systems, inconsistent implementations across manufacturers and product lines created problems that slowed deployments and delayed revenue.

## Ongoing Management is Resource-Intensive

As system and game manufacturers introduce and continue to support multiple protocols and multiple versions of each, operators find that their internal support, troubleshooting and training requirements also become more demanding. With responsibility for several thousand games, operators need a small army of technicians and an increasing budget for labor costs. For example, updating flash memory or game features on a gaming floor requires technicians to physically change out chips on each machine. Today, a single update can take days or weeks while simultaneously introducing the possibility of human error, resulting in accidentally skipped machines or other oversights.

## A Lack of Flexibility Limits Opportunity

Operators need far greater flexibility than proprietary technology allows for promotions, updating games, and personalizing their offerings. In operations with several thousand slot machines on the floor, it can take up to a week to update them all, limiting operators' marketing flexibility. For example, if on Wednesday, the casino has an opportunity to book a weekend boxing match, it is impossible to update all of the slot machine displays in time to advertise the match to casino players before the event occurs.

## Multiple Proprietary Protocols Limit Industry Growth

Because system manufacturers largely determined the protocols deployed and introduced them when it was advantageous, it took time for games and peripherals to be updated to work with new protocols. With commitment to existing protocols and their maintenance, game and peripheral vendors rarely had extra resources to dedicate to new capabilities and products, which slowed innovation. Although proprietary protocols may have conferred a limited market advantage for manufacturers, protocols added no value to a player's gaming experience or to an operator's

competitive advantage. In fact, committing to a manufacturer's gaming system limited operators to only those games and peripherals compatible with their system of choice.

However, today's gaming customers are clearly in the Internet age—accustomed to highly sophisticated visuals, instant access to all forms of entertainment and information, and immediate results or feedback. Games and systems must be able to support these needs and deliver a fresh, innovative experience for each player, each time. This not only requires leading-edge games, it requires the capabilities of a networked gaming floor to support the data- and bandwidth-intensive functionality required for successful operations and growth. While clearly an improvement when introduced, SAS cannot support the bidirectional information needs of today's increasingly networked floors. It is not efficient, cannot support the rich media capabilities of innovative games or player tracking, promotional, and other systems.

## Standards Unleash Industry Potential

As the technology industry increasingly established open standards, high levels of interoperability unleashed a flood of device, functionality, media, and content innovation. For example, in 1994, open standards fueled the growth of the Internet and development of capabilities that allow us to email anybody, anywhere; play MP3 music files on any platform; access any web page; live wirelessly with Bluetooth and WiFi; and transform the way we work, live, and play.

Open technology standards are also driving advances in gaming. For example, game and system manufacturers are turning to Extensible Markup Language (XML) and other standards of the technology industry to simplify integration and support increasingly web-based applications. As the industry moves from game applications such as single purpose slot machines, to client/server-based gaming and all that is possible through it—standardizing connectivity and communication is crucial.

## The Gaming Standards Association

The Gaming Standards Association (GSA) has taken the lead in the migration toward protocol standards. As an international trade association, the GSA facilitates the identification, definition, development, promotion, and implementation of open standards to enable innovation, education, and communication for the benefit of the entire industry.

GSA assumed change management of the SAS protocol in 2001, and by the end of 2009, the industry will no longer extend the capabilities of the SAS protocol. Although the SAS protocol will remain in existence for the foreseeable future, GSA has spearheaded development of three standard protocols that will drive the development of new systems, games, and peripherals.

## The GSA Game to System Protocol

Game to System protocol (G2S) is the communication protocol that unlocks the power of networked gaming and revolutionizes the way information is exchanged between a gaming device and the back of house systems. Based on proven computer industry standard technologies, such as Ethernet, TCP/IP and XML, the G2S protocol supports software download and remote configuration, which paves the way for downloadable games, client/server games, and intranet and Internet gaming environments. It helps create an agile floor that gives operators the ability to quickly adjust to changing business requirements and new opportunities while maintaining the games of today into the future. The G2S protocol also includes Secure Socket Layer (SSL) encryption for securing floor data and providing auditable configuration changes and remote software verification.

## The GSA Gaming Device Standards Protocol

The GSA Gaming Device Standards (GDS) protocol is a Universal Serial Bus (USB)-based protocol used to connect gaming peripheral devices such as printers, note acceptors, and card readers to gaming devices. The GDS protocol combines the powerful plug-and-play capabilities of USB 2.0 with the ability to download new firmware to peripheral devices—enabling operators to immediately reduce labor costs and accelerate updates and refreshes.

## A Brief Look at the GSA Certification Process

With advent of GSA standards, new games, peripherals, and systems can be tested and certified for conformance with G2S and GDS protocols. The GSA Certification Program consists of testing requirements developed by GSA members, which thoroughly evaluate GSA protocol implementations. The program also contains a feature unique in gaming certification: a certification feedback loop, which provides operators with a way to interact with, and have input into, the Certification Program.

Testing in accordance with defined testing standards also helps ensure consistent implementations of GSA protocols for all member of the gaming industry, and is expected to minimize or eventually reduce the communication handshake incompatibilities that delay implementation and require extra resources for resolving. Operators can expect to encounter fewer issues associated with implementing, supporting, and maintaining diverse protocols while continuously improving their operations and their players' experiences.

Today's systems are not yet plug-and-play because of the diverse protocols currently implement in most operators' environments. However, as testing standards are completed and more systems, peripherals, and games adhere to GSA standards, the industry can look forward to complete compatibility. Manufacturers will continue to support several protocol standards as this transition occurs over the next five to seven years. Operators can check the GSA Certification Registry

database to identify GSA-Certified products and ensure that the product is compliant with GSA standards before purchasing.

## The Benefits of Standardization

Although it is still too early to realize the full benefits of certification, operators expect to gain significant advantages from standardization.

### Improved Competitive Advantage

Standardization gives operators unprecedented operational and business flexibility. Now, business decisions and supplier choices can be based on performance and business quality—instead of by technical issues and proprietary technological conditions. With a level playing field, an operator's best suppliers will be those that generate the best business.

Neither will operators be restricted to a limited range of compatible products. They will be able to have the same excellent products that neighboring casinos have or choose new ones from broader product library for competitive advantage. With a properly implemented S2S interface, it is also much simpler to replace games or devices or push the same content to any manufacturer's machine, digital sign, or kiosk to help maintain consistent branding across a facility or multiple casinos.

Rich media and the ability to deliver content or retrieve information from the gaming floor allows operators to personalize the patron's experience. For example, it is possible to capture a patron's name from a card reader and transfer to personalized coupons or other innovative applications to create a superior customer experience.

### Achieve Your Gaming Vision

As a result of GSA's work to date, the industry's vision of a fully networked, high-performance gaming floor connected with back-of-house operations, real-time player activity, and guest services is on its way to becoming a reality. Networked floors are based on advanced IP network architectures that deliver data, voice, and video to enable dynamic bidirectional polling, game configuration, and data and content transport to and from digital gaming devices. Data generated by each device can be captured to improve gaming floor performance, understand player and game interaction, and drive marketing, loyalty, and promotional strategies.

Specific benefits of networked gaming infrastructures for operators include:

- The ability to easily distribute content to multiple platforms from multiple vendors
- Resort integration through the ability to capture and track loyalty points from the resort, retail shops, guest room services, restaurants, and events
- Unified visibility into player gaming activity and net worth
- Simplified inter-jurisdictional communication for financial tracking, software compliance reporting, inter-property marketing, helping ensure responsible gaming
- Improved data warehousing through consistent data
- Improved table gaming, accounting, and management
- Improved slots
- The ability to extend gaming beyond 'brick and mortar' casinos over the Internet

## Simplified Implementation and Support

Operators will be able to accelerate deployment and simplify management of games and devices with higher rates of first-time success. Standards-based, GSA-certified solutions can be phased in and coexist with existing slot floor networks. The ability to automate downloads also reduces labor. What used to take multiple teams of people days or weeks to complete can take one person just a few minutes. New content can be downloaded to several thousand slot machines in just minutes, instead of a week. Polling can deliver a snapshot of which games are resident on each machine, which peripherals are installed, the current software version installed on each machine, and other operational information, while providing alerts when a machine needs immediate attention, such as an emergency cash drop or if the bill acceptor cannot take money.

## Reduced Costs

Standardizing on common protocols reduces ongoing operations costs in many ways. Less complex systems need less management, less training, and less support. Upgrade costs can also be reduced. For example, each operator can calculate the cost of upgrading gaming device note acceptors each time a new note is released by a country's currency system. In the state of Nevada alone, changing a U.S. Treasury note would require more than 200,000 slot machines to be opened, the note acceptor accessed, and new software installed. The cost of lost revenue and the cost of the labor is directly proportionate to the size of the operation. With GDS-based peripherals, standards could significantly reduce those costs.

In addition, configuring peripheral devices for dual-port connectivity to games and promotional content and other back-office systems has typically required customized connectivity. Standards-based interfaces eliminate the need to customize interfaces, modify game systems, or tailor computers simply to make systems work together.

## Enabling Service Innovation

Just as in the world of networking and software technology, the impact of protocol standardization in gaming will be seen in a proliferation of rich new functionality. Games and systems will compete on their ability to deliver rich features and support operators' business objectives. New capabilities, such as dynamic game configuration to accommodate different styles of play and tailoring games and denominations to specific types of players can optimize the player experience and support customized marketing and reinvestment programs.

Operators can also introduce new service opportunities for their patrons, such as beverage-on-demand, valet, dinner reservation, tee time, and transportation services. Marketing coupons and reservations can be made available automatically when certain player thresholds are reached. Advertising can be extended seamlessly throughout the property and connected with promotions, while rewards and loyalty programs can operate in real time, at the point of play, to increase satisfaction and drive player behavior to earn extra awards while still on the property.

## Regulatory Benefits

Standards-based systems, games, and peripherals can make it easier to reduce floor errors and collect the data required for supporting regulatory compliance.

## Join GSA Today

GSA membership is growing and members span manufacturers and operators around the world. Operators who join GSA gain the opportunity to help guide the development of standards that meet their business requirements. Join today, or for more information, visit [www.gamingstandards.com](http://www.gamingstandards.com).