

ELECTRONIC RAFFLE SYSTEMS: Realizing the Potential

Maintaining Integrity in Charitable Gaming
while Managing New Technology



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A GLI® WHITE PAPER

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NEW TECHNOLOGY IS CHANGING THE DELIVERY OF RAFFLES

Raffles are a time-tested method of fundraising for charities, providing a cost-effective way to promote community involvement with the charity and having the added benefit and excitement of possibly winning a prize. Raffles are often small in scale, but the community engagement initiatives of professional sports organizations and the fund-raising efforts of large non-profit organizations have resulted in charitable foundations which count their annual raffle sales in the millions of dollars.

Traditionally, manual raffles have been conducted using pre-printed paper tickets with a detachable stub which provides a simple and convenient method of distributing tickets and selecting winners by a random draw of the ticket stubs from a container of some kind. Administering these paper-based raffles involves predominantly manual processes, which are time-consuming, prone to human error and inefficient to scale to large numbers of tickets.

Conversely, electronic raffles can use a combination of wireless and computer technologies to print patron tickets on demand and record the ticket sales in real time in centralized computer systems. Winner selection can be made by either simultaneously printing counterfoil tickets into a container for a manual draw or using a random number generator (RNG) to randomly select a winner from the database of sold ticket numbers.

The electronic raffle systems themselves and the regulations which govern their deployment and operation must live up to the expectations of integrity of patrons if these systems are to be accepted as routine products.

Electronic raffle systems offer charities a longer selling period because ticket sales are recorded in real time, eliminating the need for a manual reconciliation period before the draw takes place. In addition, the ongoing size of the jackpot can be readily displayed to patrons, thereby promoting excitement in the draw. Electronic raffle systems can also make the generation of reports and the management of the raffle process more efficient for charities.

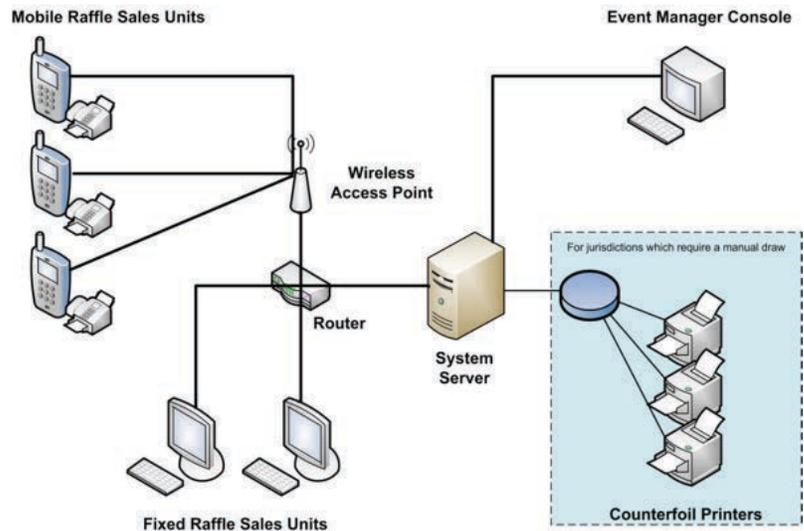
That being said, while electronic raffles are conceptually simple, the infrastructure required to deploy and manage these systems in live venues is complex, and each deployment requires the involvement of multiple stakeholders. Managing the risks associated with the technology and its operation is a challenging task for all involved.

For the regulators of charitable gaming, the rapid introduction of these new technologies means adapting regulations and processes designed for traditional raffles to the new technologies, assessing the risks in the new technologies and trying to find ways to mitigate those exposures. This has increasingly required regulators to look at electronic systems used by charitable gaming in the same way they have viewed technology deployments in commercial gaming.

The risks associated with the deployment of these systems can be mitigated through the incorporation of technical controls within the electronic raffle software and hardware itself, by the design of the infrastructure supporting the operation of the electronic raffle systems and by the operational controls adopted by the charities to manage the remaining risks not addressed in the technical solution. By establishing technical standards to cover the minimum capabilities of the technical solutions, insisting on appropriate operational controls for the charities wishing to operate these systems, and conducting post-deployment audits of the production systems, regulators have been able to ensure the continued integrity of electronic raffle systems.

ELECTRONIC RAFFLE SYSTEM ARCHITECTURE

Electronic raffle systems are usually comprised of a number of commercial off-the-shelf hardware components which are integrated together to form a system using the specific system supplier's raffle software. While the concept of an electronic raffle system is straightforward, the infrastructure required to make it a reality is complex. While different supplier implementations differ in the details, a basic architecture is shown to the right.



BASIC ELECTRONIC RAFFLE SYSTEM ARCHITECTURE

Mobile Raffle Sales Unit

The mobile raffle sales unit consists of a combination of a handheld sales device and a mobile printer. Physically tethered devices have proven cumbersome in this role and most solutions now use Bluetooth-enabled handheld devices and printers, although maintaining a Bluetooth connection is sometimes challenging in a live venue where there may be a significant amount of background wireless activity.

Handheld Sales Device

- Requires the capability to connect to both a wireless network (Wi-Fi or cellular) and a Bluetooth mobile printer.
- Requires touch screen capability for ease of operation in live venues.
- Requires the capability to support a removable memory device (e.g. an SD card) to be used as a backup storage device.
- All common operating systems for mobile devices - Windows Mobile, iOS and Android – have been used by different suppliers of electronic raffle systems.
- The raffle sales software application installed on the handheld sales device commonly has a simple interface restricted to just selling raffle tickets.

Mobile Printer

- Requires Bluetooth capability to connect to the handheld sales device.
- Various mobile thermal printers have been used in this capacity.

Fixed Station Raffle Sales Unit

A fixed station raffle sales unit is offered as an option with some electronic raffle system solutions. Having a fixed location for raffle sales offers the opportunity for a charity to sell from a booth with its associated high visibility to drive sales. The fixed station raffle sales unit is typically a point of sale terminal running client software analogous to that running on the mobile sales units.

- Requires touch screen capability.
- Requires an integrated thermal printer.
- Usually uses a common PC based operating system, such as Windows or Linux.
- Connected to the central raffle system server through an Ethernet connection, but may also have wireless capability.

Raffle System Server

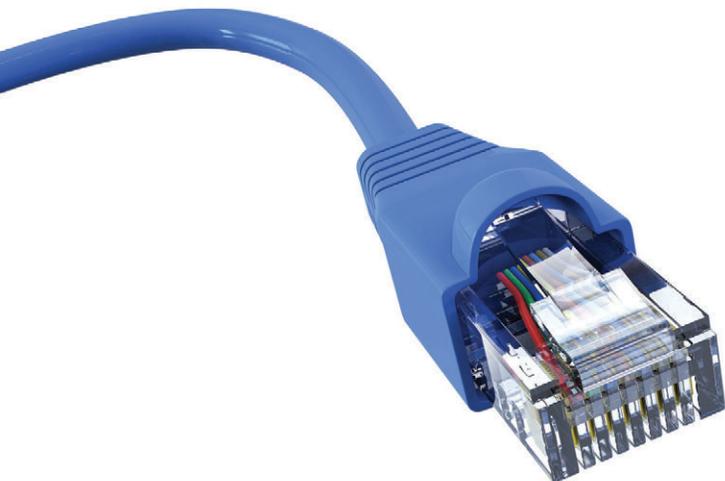
In deployments where the raffle system server connects to the sales units through a local area network (LAN), the raffle system server may be a stand-alone server located in the charity's space at the venue or a server housed in the IT space of the venue and maintained by the venue IT department. Where the raffle system operates over a wide area network (WAN), the system server may be physical or virtual and be housed in one or more data centers to provide a high availability solution. The raffle system server component typically includes both a server application (commonly Microsoft Server or Linux) and a database application (such as Microsoft SQL Server, MySQL or Access).

The raffle system server application is used to set up events, enroll and disconnect mobile and fixed terminal devices, assign sellers to sales devices, monitor sales progress, provide information feeds to sales and display units, complete winner verification and provide a comprehensive reporting solution. The database logs all sales and system data to support reporting functions and to provide an audit trail if an investigation or a reconstruction of an event is required. The raffle system application also provides the support for winner selection:

- In jurisdictions where a manual draw is required, the raffle system server includes a printer controller to balance the load and control the printing of counterfoil tickets used for the draw.
- In jurisdictions where an RNG can be used for winner selection, the RNG is included as a module of the raffle system server.

Counterfoil Printers

Counterfoil printers are usually high-volume thermal printers with automated paper cutting capability which can generate counterfoil tickets of identical size and deposit them into a container for drawing. To print the volume of counterfoil tickets required for a manual draw within the time frame available for a single event, a battery of printers prints counterfoil tickets into a container in preparation for a draw.



MANUAL OR ELECTRONIC DRAWS?

Some jurisdictions require that raffle draws are conducted manually with winning counterfoil tickets being drawn randomly from some kind of container, whereas others permit winner selection using an RNG. A consideration of the following advantages and disadvantages of using either a manual draw or an electronic draw is useful when considering policy decisions regarding this aspect of deploying electronic raffle systems.

Advantages

- Cost – The use of an RNG instead of counterfoil tickets can reduce the overhead costs associated with counterfoil printers, ticket paper and barrels to hold tickets, physical storage space, and possibly staff to monitor printers during events.
- Integrity – The use of an RNG instead of counterfoil tickets reduces potential field issues associated with a counterfoil ticket printing process such as lost or misprinted tickets.
- Software Development - Eliminating the need for counterfoil printers removes the need for the printer control functionality in the software, thereby removing development costs of this software functionality.

Disadvantages

- Transparency – Since the RNG winner selection process is not visible to patrons compared to a manual draw process using counterfoil tickets, some patrons may find the reduced transparency to be a concern.
- Security - Securing access to any part of the RNG or the software controlling the draw becomes a higher priority when an RNG is used, especially where back-end access is potentially available to multiple stakeholders.

NETWORK INFRASTRUCTURE

Wireless Network

A wireless network is used to connect the mobile components of the electronic raffle system to the system server. The wireless network is rarely supplied or controlled by the system supplier and is most often provided by the venue where the raffle is to take place.

- Raffle system traffic on the wireless network should be segregated from other venue wireless traffic.
- Sufficient wireless access points (APs) should be distributed around the venue to reduce the number of “dead” zones as much as possible.
- APs should have sufficient capacity to handle the traffic expected in the areas where they are deployed.
- Cabling from APs to wiring closets should be protected from physical access by being placed in inaccessible locations in the venue.
- Depending on the network configuration a router may be necessary to manage traffic between the different raffle system components.
- Wireless connections should be encrypted using WPA2 or better encryption to protect sensitive data.
- MAC address filtering may be used to limit network access to only those mobile devices enrolled by the electronic raffle system.

Wired Network

A wired Ethernet network may be in place to connect fixed station raffle sales units to the system server and/or connect the counterfoil printers to the system server.



WHAT HAPPENS WHEN THE WIRELESS CONNECTION IS LOST?

There will be times when the Wi-Fi or cellular connection to the mobile sales device will be lost, and all electronic raffle systems need to incorporate a solution to cover this eventuality -- whether that solution is to cease ticket sales or to continue selling and recording ticket sales while off-line.

Where individual draw numbers are assigned by the system server software, the pre-assigned draw numbers can be downloaded into the mobile sales device for subsequent sale and then uploaded when connection to the system server is re-established.

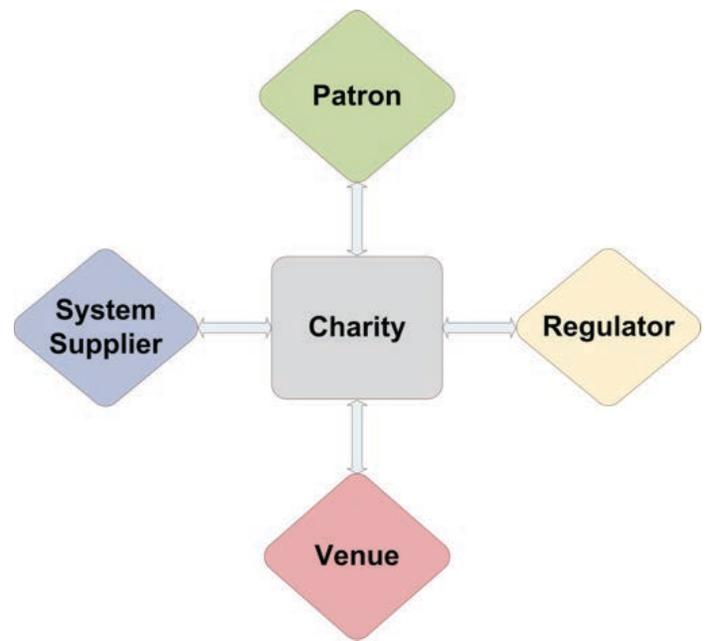
Where individual draw numbers are created by an algorithm in the mobile client software, the sold tickets can be cached on the mobile sales device and then uploaded to the system server when connection to the Wi-Fi or cellular network is re-established.

In each case, a backup system is typically implemented on the mobile device to store sold draw numbers and to upload them to the central server manually in the event that a Wi-Fi or cellular connection to the system server cannot be made prior to the time when draw numbers need to be available for winner selection.

Multiple Stakeholders - Roles and Responsibilities

The typical deployment of an electronic raffle system involves multiple stakeholders as shown to the right. While there are potential multiple stakeholders, the charity which holds the license to operate the electronic raffle system will ultimately need to manage the separate demands of the different stakeholders.

Charitable gaming regulations provide for regulation of the charity and in some cases the software supplier but the venue, which provides the infrastructure on which the raffle system operates, is not usually included under charitable gaming regulations. Regulators will require the electronic raffle system to meet the minimum technical requirements of the jurisdiction. The following roles and responsibilities are characteristic of most electronic raffle system deployments:



MULTIPLE STAKEHOLDERS INVOLVED IN RAFFLE SYSTEM DEPLOYMENT

Charity – Field operation of the system

- Recruitment and training of ticket sellers in the use of the hardware and software components of the system, which may be conducted with the assistance and cooperation of the system supplier.
- At event time, management of the system set up, the supervision of sellers and the reconciliation of sales information and receipts.
- Drawing of the winning number and the distribution of the prize to the winner.
- Generation of reports to meet both external regulatory and internal business needs.
- Storage (and possibly some maintenance) of raffle system equipment at the venue.

Venue – Space and infrastructure

- Provision of secured space for the charity to store and charge the batteries of the equipment associated with the electronic raffle system.
- Provision of space for the charity to organize sellers and manage the raffle process.
- Provision of wireless network or fixed network infrastructure and equipment support.

System Supplier – Software and hardware provisioning and support

- Provision of electronic raffle software and compatible hardware.
- Upgrades to the system software and hardware.
- Technical support to the charity.
- Ensuring the electronic raffle system meets jurisdictional regulatory requirements.

Regulator – Gaming integrity and operational compliance

- Establishment of technical standards to ensure system integrity.
- Receives and reviews independent test lab and charitable gaming reports.
- Conducts ongoing compliance monitoring.

BENEFITS AND CHALLENGES OF NEW TECHNOLOGY

Why change from the simple pre-printed paper ticket model to a complex electronic system? The driving advantage for the charity is that the adoption of this new technology can result in increases to the efficiency of the raffle process and an improvement in the bottom line for the charity. However, this change brings all the challenges associated with the adoption of a new technical solution.

Benefits

Benefits associated with the adoption of the new technology include:

- The possibility of having a longer ticket selling time because there is no time needed for paper ticket collection and less time required for receipt reconciliation.
- Because tickets are printed for patrons on demand, it's possible to increase the number of tickets sold as demand increases, without being limited to the number of pre-printed paper tickets on hand.
- Real time updates on the jackpot help to drive sales as patrons are made aware of the climbing value through display on the arena signage or via social media.
- Electronic systems can capture more accurate data about the sellers and the timing and location of sales in the venue to help charity managers plan their sales operations.
- Electronic systems have the potential to provide better audit trails to reconstruct or investigate sales associated with an event.
- Electronic systems have the potential to provide better records and more efficient reporting capabilities, thereby reducing compliance costs.

While the adoption of this new technology may not be appropriate for all charities, for larger charities - such as those associated with major sporting teams and large events - the adoption of these new technologies can bring operational and financial benefits.

Challenges

All stakeholders should understand the challenges associated with new technology and work together to mitigate any risks associated with its introduction. Risks associated with the deployment of electronic raffle systems include:

SYSTEM RISKS

- The commercial off-the-shelf equipment used in the raffle system deployment may not be robust enough to meet the needs of the live venues. The mobile components of raffle systems are commonly deployed in outside venues or arenas and need to be resistant to physical impact and have communications capabilities to continue operating against a backdrop of wireless noise. The system supplier and the charity should consider carefully the hardware deployed in the raffle solution to ensure it meets the needs of the venue where it will go live.
- Systems do not incorporate sufficient functionality within the technical solution to control for possible misuse by non-technical personnel. This includes software gateways to enforce the correct progression of raffle activities and to record acknowledgements of control steps. System suppliers should embed as many control functions in the software as possible to reduce risks associated with manual control processes.
- Data integrity may not be sufficient to ensure that events can be reconstructed or an audit trail be available. Systems should be designed and controls should be put in place to ensure that all sold draw numbers are available for winner selection.

INFRASTRUCTURE RISKS

- Wireless networks in venues may not have sufficient coverage to provide a continuous live mobile connection throughout the venue. As a result, mobile devices may not be able to sell continuously in live mode. To compensate, systems should have the capability to sell draw numbers when not in direct connection with the system server.

- Data transmissions between mobile devices and the system server should be encrypted to ensure the integrity of the information being exchanged.
- Public accessibility to the gaming network should be restricted to prevent disruption to the raffle process. The primary risk to be addressed is the risk of corrupting the stored raffle information or of disrupting the sales and draw process than the risk of being able to interfere in the business logic of the raffle system.

CHARITY RISKS

- Systems should be designed with robust reconciliation mechanisms to prevent fraud by sellers. Most systems incorporate detailed reporting features which provide a more complete audit trail than manual raffles.
- Systems should have robust embedded processes to manage the situations where bearer tickets are voided to prevent voided draw numbers from being selected as winners.

MAINTAINING INTEGRITY

Given the large amounts wagered on raffles at events, and the use of electronic systems susceptible to technical problems and abuse, these systems have attracted regulatory attention above that normally required for smaller scale charitable gaming operations. A combination of technical standards and operational controls can be used to ensure the integrity of the electronic raffle system without being unnecessarily burdensome on the charities or the system suppliers. Regulations covering technical requirements can be used to establish a minimum technical benchmark that systems have to meet, while operational controls imposed on the charities as part of the licensing process can cover risks which still remain in the systems.

Regulation: Technical and Jurisdictional Requirements

Until recently, technical standards governing the specifications of potential technical solutions did not exist. Following requests from a number of gaming regulators GLI developed the GLI-31: Electronic Raffle Systems standard, available for use as a baseline technical standard for electronic raffle systems. In addition to this baseline technical standard, individual regulators have added additional jurisdictional requirements or standards to address their own specific public policy needs.

Technical testing for electronic raffle systems usually follows a path similar to that for other electronic gaming equipment:

1. Laboratory testing against the requirements of GLI-31;
2. Laboratory testing of additional jurisdictional requirements or standards where requested by a regulator; and
3. Venue testing of the production system where requested by a charity, system supplier, or mandated by a regulator.

In the case of raffle systems, venue testing has been found to be especially important as there is a considerable difference between the test bed set-up provided by systems suppliers to facilitate independent laboratory testing and the full production systems incorporating implementations specific to the venue infrastructure. In particular, performance testing (where systems are tested to the maximum throughput possible with the physical infrastructure at the venue) has proved valuable in uncovering weaknesses in design architecture and implementation which are not apparent from laboratory testing on the test bed set-up.

Regulation: Operations and Continuous Compliance

It is important to note initial venue testing assesses the system at one particular point in time. In order to identify and address potential system issues manifesting themselves post-deployment and to ensure continuous compliance, subsequent periodic auditing by the regulatory body, system supplier, and/or the independent test lab is recommended as necessary. To assure stakeholders of continued robust operation of electronic raffle system it is necessary to periodically reassess both the raffle results, internal controls and the processes utilized to correctly operate the raffles. A balanced combination of well planned technical testing and thoughtful audit execution ensures continuous integrity of the charitable gaming process is maintained.

About GLI

Gaming Laboratories International (GLI®) is the world's leading land-based, iGaming and lottery testing laboratory.

For more than 25 years, Gaming Laboratories International, LLC has continuously delivered THE best quality land-based and iGaming testing and consulting services with supreme accuracy while reducing time to market.

With 21 laboratory locations spread across Africa, Asia, Australia, the Caribbean, Europe, North America and South America, GLI is the only global organization of its kind to hold U.S. and international accreditations for compliance with ISO/IEC 17025, 17020, and 17065 standards for technical competence in the gaming, wagering and lottery industries.

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