



# Design / Build Your Own G2S Application

Gaming Technology Summit 2010

# Building an Application with G2S

## What we'll explore in this session:

- **What is G2S? (a hopefully non-technical view)**
- **How does it work?**
- **How is G2S different than what you have now?**
- **How you can build (or design) an App for G2S**
- **How to get started...**

# A QUICK OVERVIEW OF G2S

A little bit of WHY it's cool and HOW it works

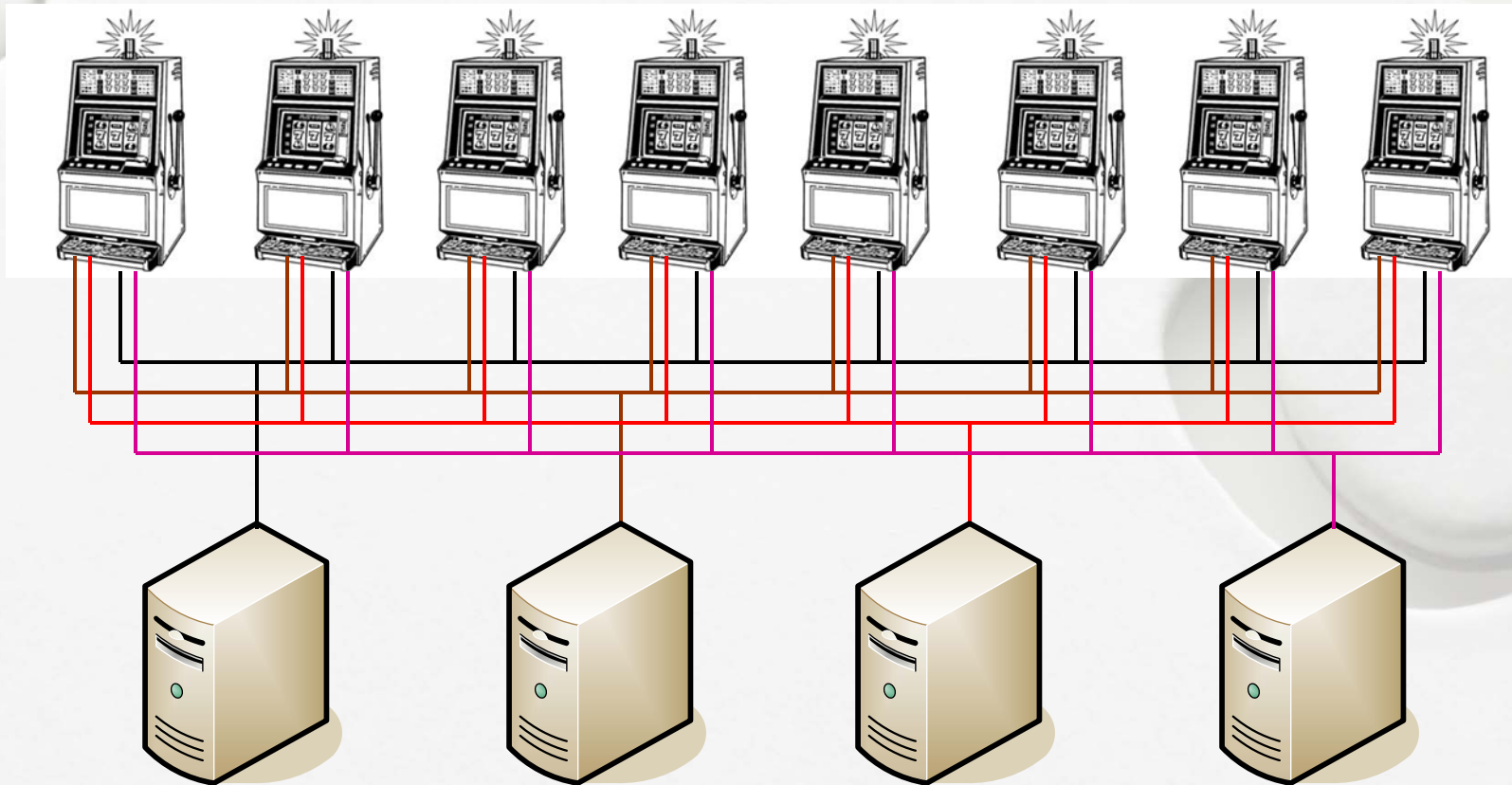
# The Jargon of G2S

- **GSA** – Gaming Standard Association
- **G2S** – GSA's Game To System Protocol
- **EGM** – Electronic Gaming Machine
- **Host** – A Server or service running one or more apps
- **XML** – A modern method of expressing data to move it
- **Web-services** – communicating across a network by connecting to web-servers on remote Hosts
- **App** – A programmed application that does cool stuff with G2S information
- **Happy Camper** – You when you finally get what you want, when you want it...

# WHY is G2S Cool?

- 1. Every G2S EGM can talk directly to multiple hosts**
- 2. G2S uses off-the-shelf Internet technologies**
- 3. You access incredible data in each EGM**
- 4. Since G2S accommodates multiple hosts**
  - Your slot system can do the boring stuff, and you can do the fun applications**
  - With multiple hosts, anyone can build an app for your floor**

# Here's HOW your floor works now



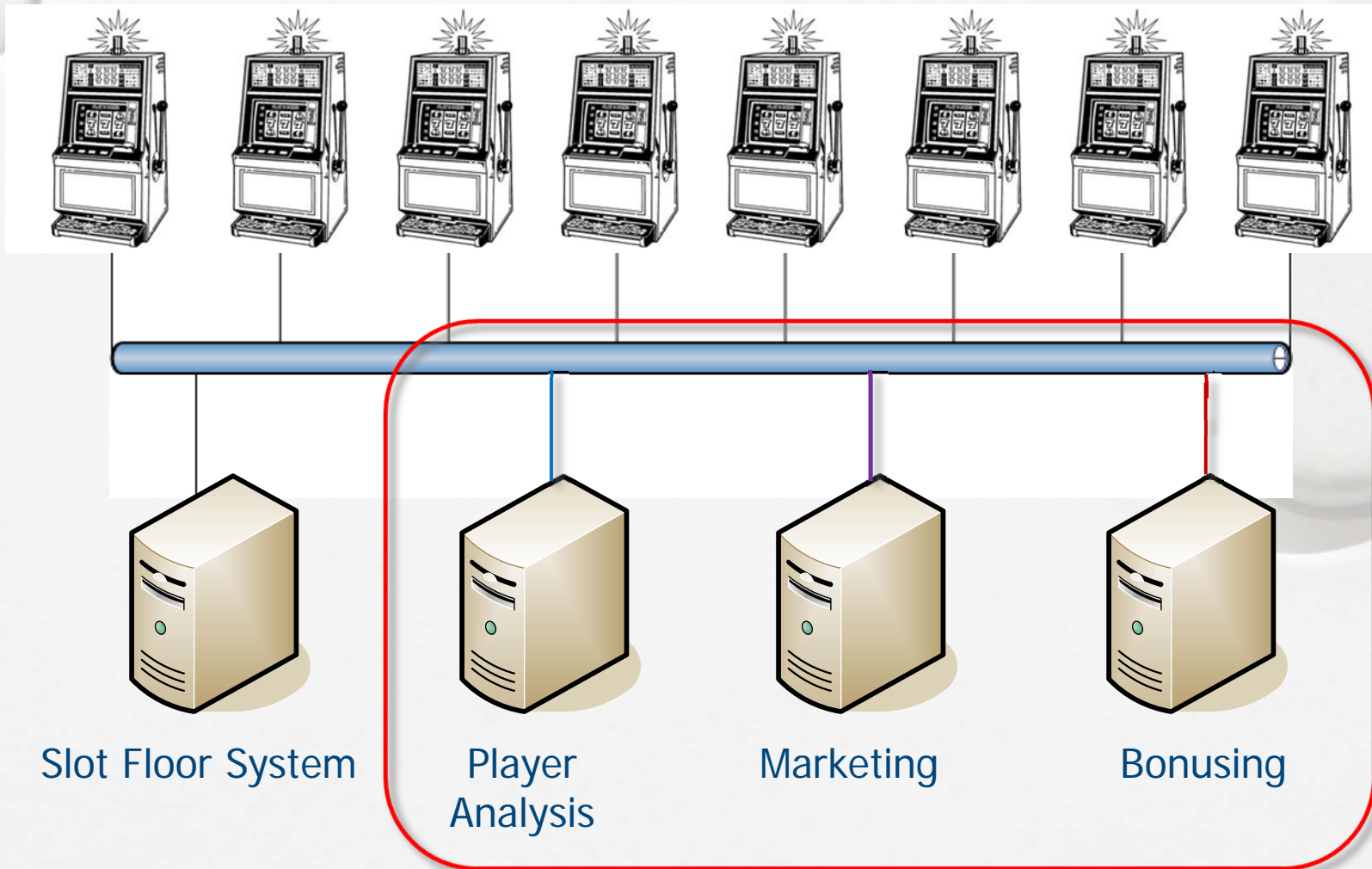
Slot Floor System

Vouchers

Analysis

Bonusing

# With G2S, there's a network on your floor!



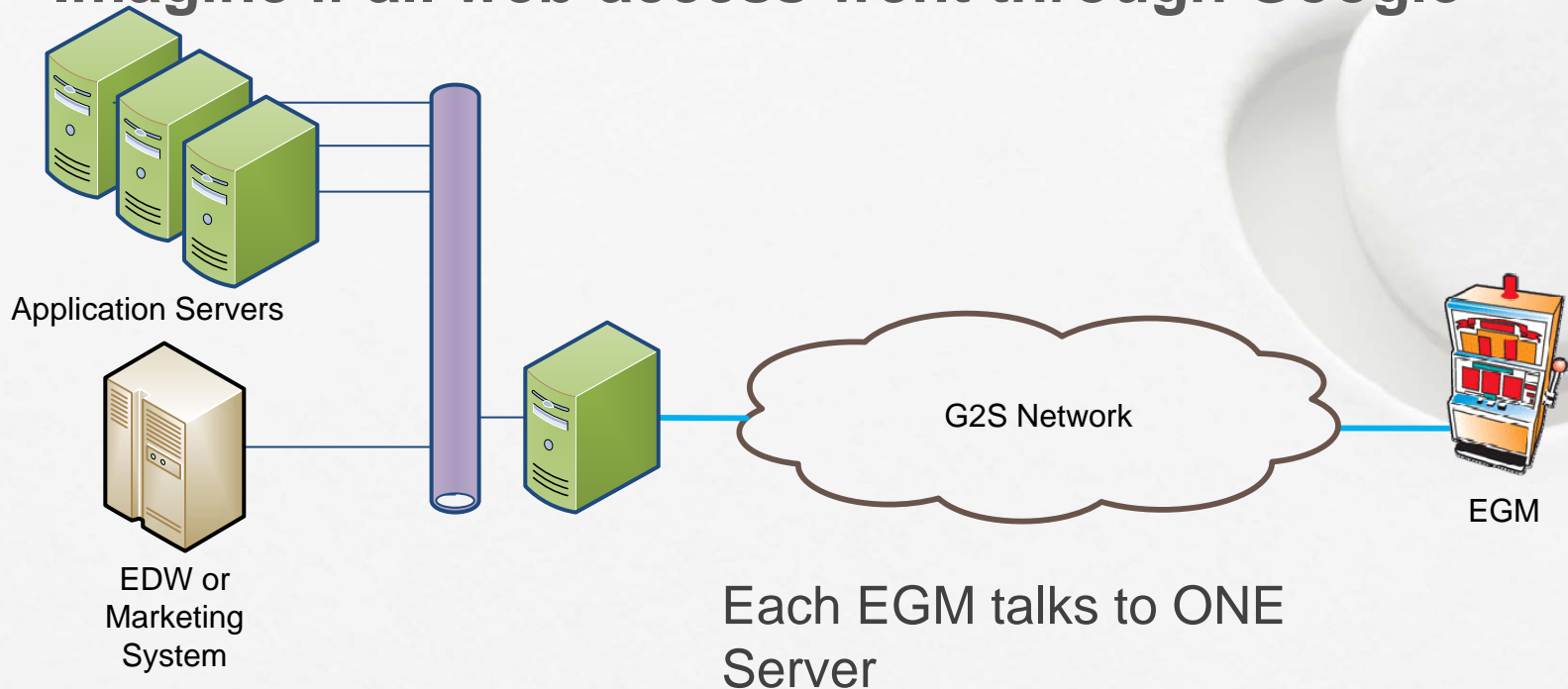
# The Benefits of the Network

- **Every EGM is a web-server – easy access to data**
- **Fast – if 1Gbps, then over 50,000 times faster than today**
- **Open using Internet technologies, vs. Closed/polled**
- **Highly secure – same security as the Internet**
- **Off-the-shelf tools are available**
  
- **Network = 1 physical connection to the EGM**
- **Network = Each EGM can talk to lots of hosts**
- **Six Host connections should be the minimum**



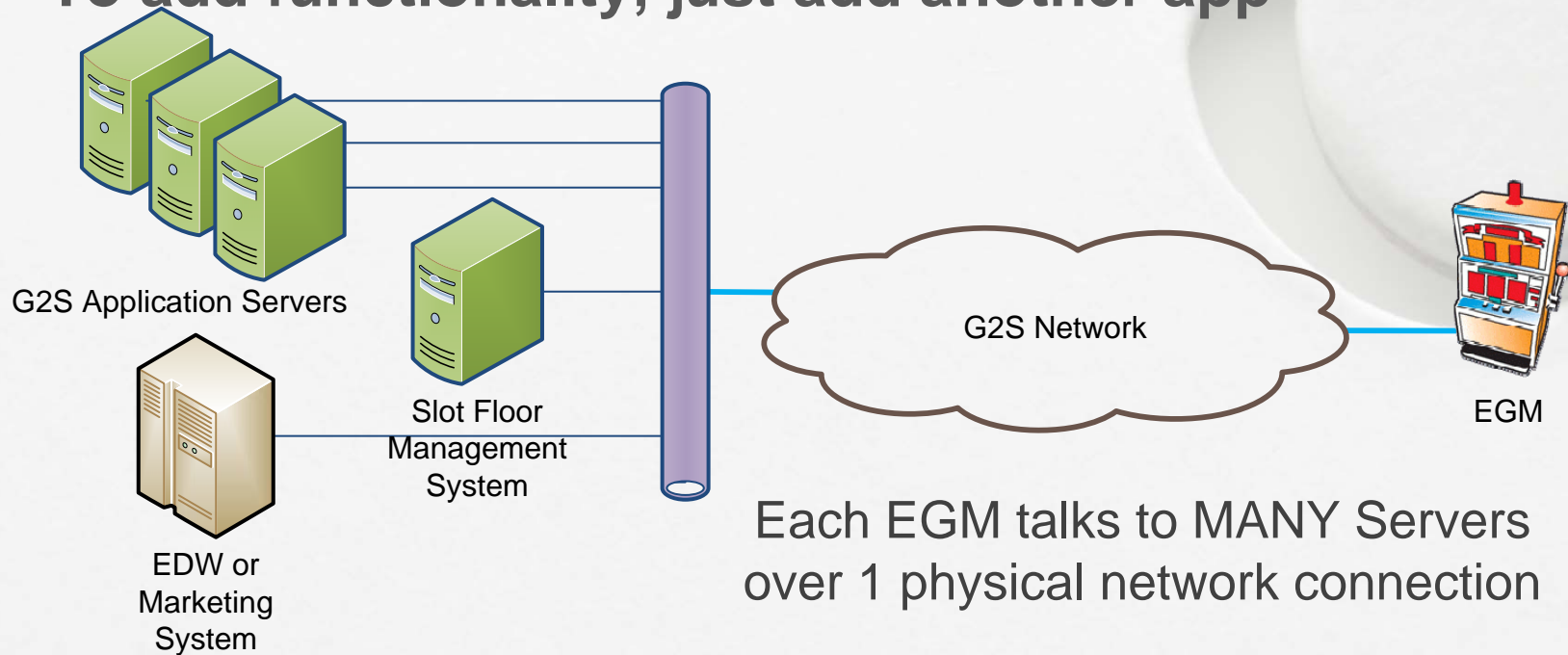
# Why SIX Connections?

- **Systems vendors like to be in control (it's a safer choice)**
- **Imagine if all web-access went through Google**



# Why SIX Connections?

- **Direct access to EGM means no reliance on middleware**
- **1 for Slot System, 1 for Regulators, 4 for your apps**
- **To add functionality, just add another app**



# EGM Startup and Discovery (How does this work?)

- **Each EGM has a list of registered Hosts**
- **On start-up, the EGM contacts each Host**
- **Each Host asks EGM about his capabilities**
- **Each Host can tweak devices he “owns”**
- **Each Host can explore devices if “guest” access**

# EGM Says “Hi – I’m here!”

## Transcript Message - [communications.commsOnLine](http://communications.commsOnLine)

Command	<input type="button" value="View XML"/>
<i>Command ID:</i>	191528
<i>Date/Time:</i>	2010-05-23T10:51:30.950-07:00
<i>Date/Time Sent:</i>	2010-05-23T10:51:30.962-07:00
<i>Device ID:</i>	1
<i>EGM ID:</i>	RBG_1234
<i>Host ID:</i>	1
<i>Session ID:</i>	2000001
<i>Session More?</i>	false
<i>Session Retry?</i>	false
<i>Session Type:</i>	G2S_request
<i>Time To Live:</i>	30000
<i>XML-Payload:</i>	<input type="button" value="View XML"/>
<i>Equipment Type:</i>	G2S_egm
<i>EGM Location:</i>	http://localhost:38101/RST/api-services/G2SAPI
<i>Device Reset?</i>	true
<i>Device Changed?</i>	true
<i>Subscription Lost?</i>	false
<i>Meters Reset?</i>	false

# Host Checks EGM's Capabilities

Descriptors

Device Class	Device ID	Device Active	Configuration ID	Host Enabled	EGM Enabled	EGM Locked	Host Locked	Owner ID	Config Host ID
G2S_bonus	1	true	0	true	true	false	false	1	1
G2S_cabinet	526059076	true	0	true	true	false	false	1	1
G2S_coinAcceptor	1	true	0	true	true	false	false	1	1
G2S_commConfig	1	ue				false	false	1	1
G2S_communications	1	ue				false	false	1	0
G2S_download	1	ue				false	false	1	1
G2S_eventHandler	1	ue				false	false	1	1
G2S_gamePlay	1	ue				false	false	1	1
G2S_gamePlay	2	ue				false	false	1	1
G2S_gamePlay	3	ue				false	false	1	1
G2S_gamePlay	4	ue				false	false	1	1
G2S_gat	1	ue				false	false	1	0
G2S_handpay	1	ue				false	false	1	1
G2S_hopper	1	ue				false	false	1	1
G2S_idReader	1	ue				false	false	1	1
G2S_meters	1	ue				false	false	1	0
G2S_noteAcceptor	1	ue				false	false	1	1
G2S_noteDispenser	1	ue				false	false	1	1
G2S_optionConfig	1	ue				false	false	1	1
G2S_player	1	ue				false	false	1	1
G2S_printer	1	ue				false	false	1	1
G2S_progressive	1	ue				false	false	1	1
G2S_progressive	2	ue				false	false	1	1
G2S_voucher	1	ue				false	false	1	1
G2S_wat	1	ue				false	false	1	1
G2S_wat	2	ue				false	false	1	1

**Row Values**

*Device Class:* G2S\_noteAcceptor  
*Device ID:* 1  
*Device Active?* true  
*Configuration ID:* 0  
*Host Enabled?* true  
*EGM Enabled?* true  
*EGM Locked?* false  
*Host Locked?* false  
*Owner ID:* 1  
*Config Host ID:* 1  
*Device Owner?* true  
*Device Guest?* true  
*Device Config?* true

*Vendor ID:* RBG  
*Product ID:* RNG\_NA23  
*Release Number:* RBG\_548754  
*Vendor Name:* Radical Blue Gaming  
*Product Name:* Worldly Note Acceptor  
*Serial Number:* 6548174-57B

Back

OK Cancel

# Meters – accessing the EGM's data

- **Every G2S host can access any meter in a G2S EGM**
- **Direct Access – Give me these meters**
- **Subscription – Give me these meters every hour**

## **Good for:**

- **Which themes are popular in the EGM?**
- **How full are the note acceptors? With what?**
- **When the show breaks, where do people go, and how do they play?**

# Events – the EGM tells you when things happen

- **The EGM will generate any events you ask for**
- **Events are created when something changes**
  - Player Session starts
  - A new theme is selected on the EGM
- **Events are well-defined by G2S**
  - G2S says which events are generated when
  - Certification ensures an EGM is working properly
- **Tune your subscription in real-time**
  - Get only the events you want
  - Associated data is available (Status, Logs, and Meters)

# **BUILD AN APP WITH EVENTS**

The secret to your success...



# General Floor Information

## CBE314 [Game Combo Activated]

- **Sent when a Player wagers on a new Theme**
- **Provides real-time info about themes**
- **Associated data includes the cabinetStatus**
  - Includes Theme, Paytable ID, Bet Denomination

**Subscribe to this one event, and you can do this**

- **Time-based popularity of themes by EGM**
- **Floor map of which games are being played**

# General Floor Information

## GPE112 [Game Ended]

- **Sent at the end of each played Game to convey the detail**
- **Associated data**
  - Affected Meters
  - Transaction Log
- **This event can cause lots of traffic**
  - Provides real-time game play information
- **Selectively turn this on/off for any EGM**
  - Subscribe when you need granular information
  - Clear the subscription when you don't

# Security Information

## CBE203 [Device failure disables EGM]

- **Sent when the EGM tilts because of a problem**
  - BV failure, Printer failure, general tilt, etc.
- **Associated data includes the cabinetStatus**
  - Identifies which device is causing the problem
  - Also shows the status of all of the EGM doors
- **This event , with a few others can be used to write a camera system, or other security application**

# Uncarded Player Activity

## Hot Player Events

- **With G2S, player information can be sent from the EGM**
- **Rather than watching every play, watch for “Hot Players”**
- **Hot Player – Player exceeds a defined limit**
  - Can have up to 5 levels (each with different events)
  - Play Basis – can be almost anything
  - Also define the period (Must wager \$100 in 5 minutes)
- **Apps you can write:**
  - Traditional: Watch for hot players of a certain level, then notify a host to greet them (pager, text message, etc,)
  - More modern: dialogue with the player to see if they want to join your player club; get their info via an interface at the EGM

# Carded Player Events

- **Session has started – includes player Id**
- **Session updated – sent at the end of every play cycle**
  - Real-time player update; includes theme and all meters
- **Session has Ended – get the final rating**
- **Interval rating – can be sent when theme changes**
- **EGM maintains session meters for player**

## Simple Apps

- **Maintain an active player locator**
- **Use Interval Ratings to see which theme they are playing**
- **Use session meters to see who's doing what**

# INTERACTING WITH PLAYERS

Messages, Promotions, and Bonuses

# Player User Interface

- **New trend to slide in a player window on the EGM display**
- **Content and applications are distinct from the EGM**
- **A clear line between gaming app and player display**
  
- **The PUI employs Flash or other modern technology**
- **Soon, SDKs will be available for any developer**
- **Player Apps in a big way...**
  - Display Flight Information (why wait at the airport?)
  - Print Boarding Pass
  - IM with Player (or Video) using off-the-shelf technologies

# Interacting with Players

- **Ask a question while the player is at the EGM**
  - What would you ask?
  - Simple query – answer is routed back to the app
  - sessionId ties request / response together
- **Auto-enroll Hot Players**
  - Set Minimum criteria
  - When player becomes “Hot” ask if they want to join your club
  - Player enters name and PIN,
  - System tells EGM to start tracking play
- **Allow players to order drinks – from a menu**
  - Only available for carded players...



# Simple Promotions for Carded Players

- **It's your birthday!**
- **Play \$100 or 50 games and get a special prize**
- **Watch Player Session Updates [PRE114]**
  - set subscription when they arrive / clear it when they leave
- **When level is achieved, then give a prize**
  - setBonusAward – give promo or nonCash money
  - setPlayerOverride – give this player double or triple points
  - setHostPoints – add 50 points to the player's balance at the EGM
  - setPlayerMessage – tell the player that a comp for 2 is waiting for them

# Tuning Countdowns and bonus points

## Countdowns and Bonus Points

- **G2S allows you to define the bonus point calculation**
  - **Basis** – a single value, or a calculated one (e.g., wageredAmt)
  - **Direction** – will the count go down or up?
  - **Target** – How many *Counts* for a *Point*?
  - **Increment** – How much *Basis* per *Count*?
  - **Award** – How many *Points* do they get when reaching the **Target**?

Example: (Basis=wageredAmt, Direction=down)

Countdown starts at **20**, then **down** by 1 for each **\$1.00 bet**

When the countdown hits the **Target**, the player gets **Award** points

# Tuning Countdowns and bonus points

## Countdowns and Bonus Points

- **G2S also accommodates overrides**
  - *Basis* (using wageredAmt) and *Direction* are fixed
  - Can change *Target* (How many it takes)
  - *Increment* (how much it costs to move one step)
  - *Award* (how many points you get when you get there)
- **Player Overrides** (down by 1 for each \$0.50 bet)
  - Limited to a specific player, follows them around the floor
  - Birthday or other event for the player
  - bonus award (play \$100 and get double points for an hour)
- **Generic Overrides** (double points – change *Award* to 2)
  - Tied to the machine (double points in this area from 3AM-5AM)

# HOW TO GET THERE FROM HERE

Where do I start?

# Help is Available to Roll Your Own App

- **Own your own network – Cisco, Brocade, etc.**
  - Your network can't be too fast
  - Consider a 10Gbps backbone, 1Gbps to EGM
- **Strategic planning**
  - Involve your System Vendor – what are they planning?
  - Consider an Independent provider to help you get started
- **Tools are available – the benefit of a standard protocol**
  - A single reference implementation is used by all developers
- **G2S Engines and stacks are starting to appear**
  - A G2S Engine abstracts out all of the G2S details, making it easy
- **Training from GSA University**

# Or, Have a Custom App Built for You

- In an open network, anyone can build an app for you
- Soon, you'll see lots of vendors with all sorts of apps

## The secrets:

- **Your Slot Floor Management System does the hard stuff**
  - Vouchers, EFT, Regulated Accounting Reports, etc.
- **Insist that every EGM be able to talk to 6 Hosts**
  - One for the Slot System, One for the regulators, Four for your apps
- **G2S means you can talk to your players at the EGM**
  - Your system vendor doesn't have to change a dozen moving parts.

# Involving Regulators

## [Give them a server on your floor]

- 1. The Slot System handles all of the regulated activity**
- 2. The regulator's server provides an independent view**
  - Significant events
  - Independent Meters
  - Check digital signatures of EGM and Peripheral Code
- 3. Then you get 4 network connections for your servers**
  - Marketing applications should have minimal regulatory review
  - Meaning they can be available more quickly
  - New apps for your players are available in months, not years.

# Take Aways

- 1. Every EGM MUST Support at least 6 Hosts**
- 2. Your network cannot be too fast**
- 3. Anyone can build a simple G2S Application**
- 4. EGM Certification is crucial**
- 5. Start small with a sand-box**



# More information

## GSA Resources ([gamingstandards.com](http://gamingstandards.com))

- Standards can be downloaded by anyone
- GSA University for training ([gsauniv.com](http://gsauniv.com))

## RadBlue Resources

- Student Versions of our Sims (EGM, Host, RPA)
- Networked Gaming Resource Page @ [radblue.com](http://radblue.com)
- Working prototypes that demonstrate all of these examples using G2S

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