Getting Game Play Data from Slot Machines

W205 Final Project - Proposal Presentation

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Background

- Slot machines come in **stand-alone** and **linked** flavors
- Stand-alone slots are connected to a Slot Accounting System on a Serial (RS-232) network and **SAS** protocol.
- Linked slots are also connected to one or more Jackpot or Bonus controllers. Myriad networks (Ethernet, Serial, UDP, TCP/IP) and protocols abound. **G2S** is a common one that uses Ethernet/TCP/IP.
- Slots operate under strict regulatory control and security: isolated network, specific open ports, encryption, physical security etc.
- Regulations prevent connections to slots from non-gaming networks.
- Casinos control Slot Accounting Systems and guard the data like hawks.
- Slot machine vendors have limited to no access to slot machine data - unless they sold the Slot Accounting System and can get the data for “diagnostics” ;-)

Aristocrat's problem

Aristocrat gets "Live" slot activity data from only 15% of its products (Wide-Area slots).

Data is sometimes collected manually (yes, pen and paper) from slots.

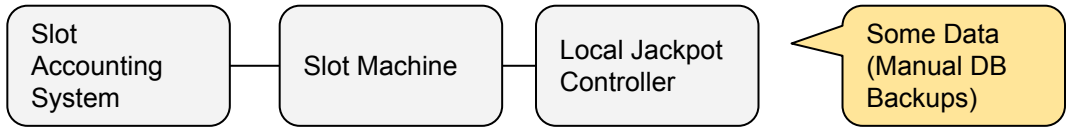
Aristocrat cannot accurately bill Casinos - relies on trust-system.

Aristocrat cannot use data to understand player behavior.

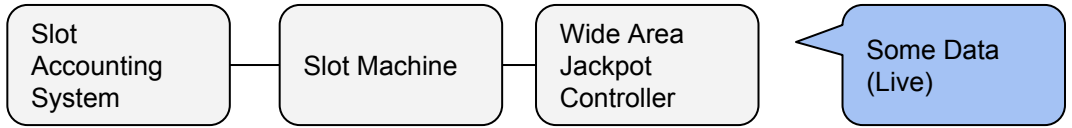
Aristocrat cannot use data to inform game development.

Stand-alone Slots (60% of installed-base):

Local-area Slots (25% of installed-base):

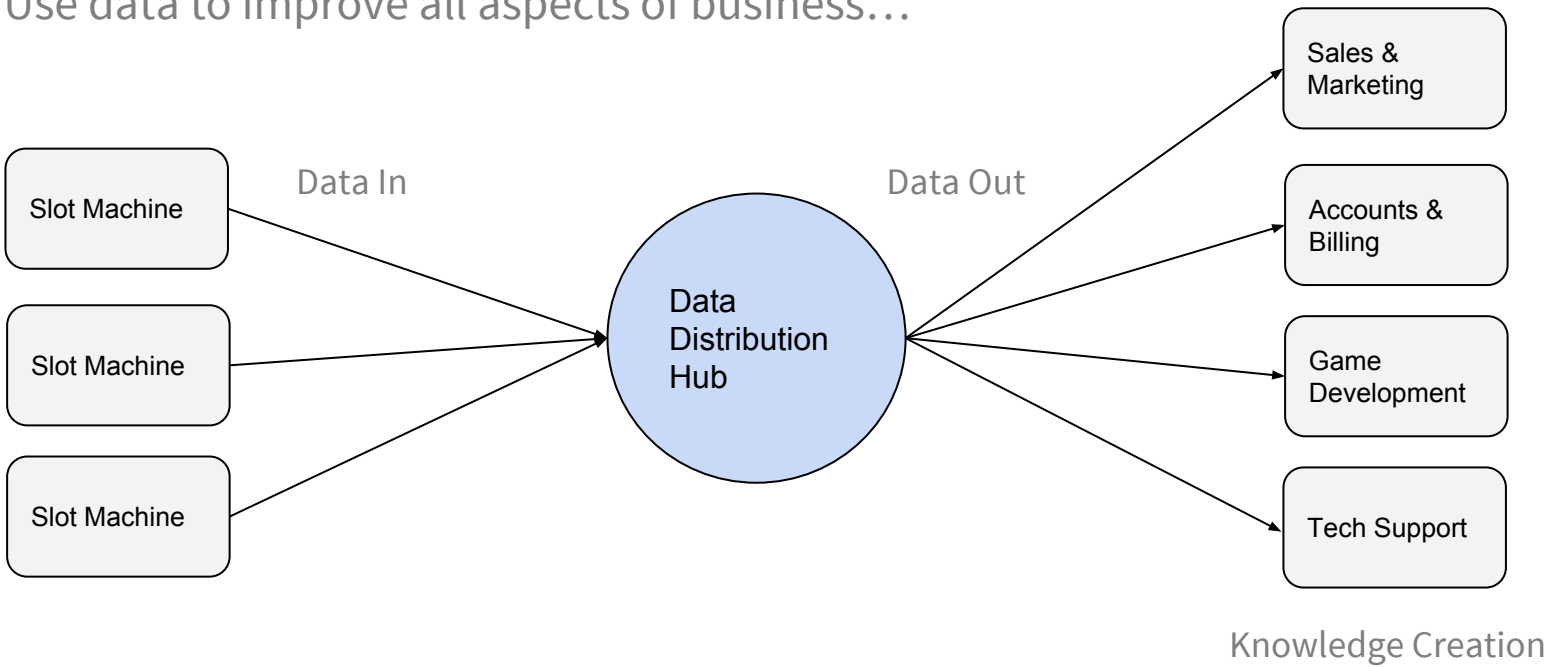


Wide-area Slots (15% of installed-base):



Aristocrat's vision

Use data to improve all aspects of business…



Knowledge Creation

The regulatory loophole

Vendors can connect to slots for “administration” and “management”.

Aka: We ***can*** get data from Slots.

The fine print:

- First rule is: no direct “external” connections to slots. Zero, zilch, zip, nada.
- Second rule is: you get the gist…
- Do not interfere with the operation of the slot machines and associated devices.
- Do not use the slot machine network.
- Do not use the Casino’s network (they won’t allow it).
- Do not cost Aristocrat an arm and a leg (business folks made me write that one).
- No changes to the Slot machine software (see above)

The master plan

Inside the Casino: Develop a [cheap] device that serves as an intermediary data store

- handle and store event data stream from EGMs (XML)
- push stored data to a permanent data store (expect 56**K**bps bandwidth)

Outside: Develop data ingestion and distribution pipeline

- parse and store data sent from devices in Casinos
- transform data e.g. apply schemas or combine data for analytics
- provide APIs for access to data

Project plan: use simulators where possible to remove hardware dependencies (slot machines are expensive >$10,000 per)

- Simulate g2s messages from 20 slots flowing through a single g2s host (1 event per 3 seconds per slot)
- Ubuntu VM to simulate ODROID XU4 (see next slide)
- Three G2S data topics (cabinet, device, game play)

The nuts and bolts