Building Systems Integration

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Building Systems Integration

- Why Integrate Anything?
- What Level of Integration is Required?
- What System(s) Will Be The Backbone?
- What Systems Should Be Considered?
- Customized vs. “Off of the Shelf”

Why Integrate Anything?

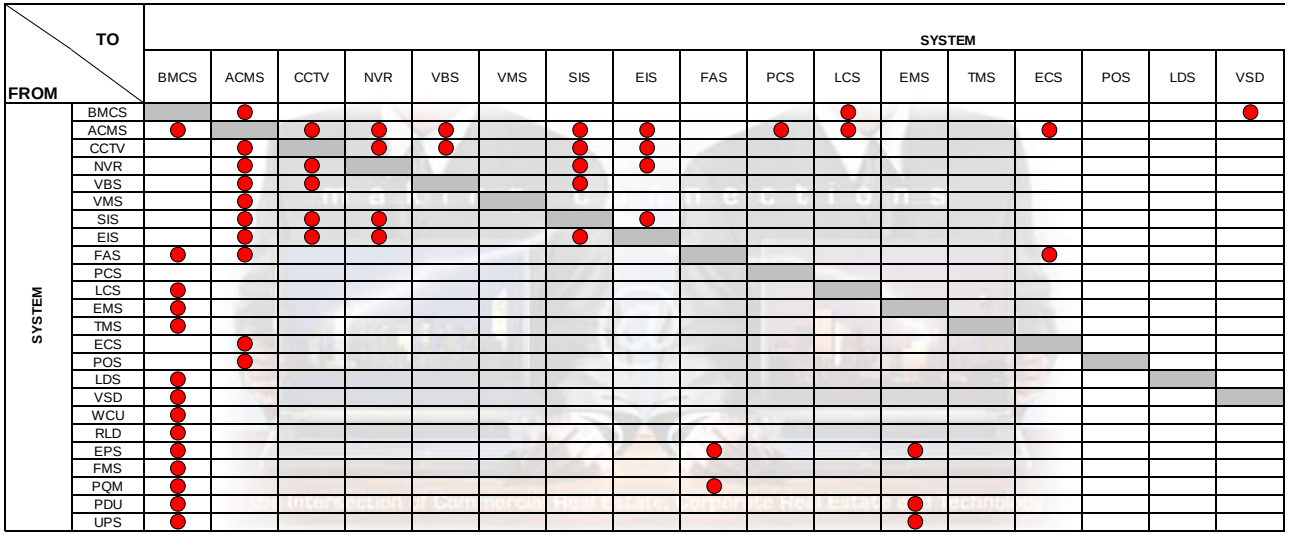
- Develop an “Owner Design Requirement”
- What is the intent of the systems?
- There should be a perceived benefit for interaction between building systems.
- Integration between two systems should result in the exchange of information that aids in the operations of the facility.

What Systems Should Be Considered for Integration?

It's simple…only the ones that are required

- Building Management and Control System (HVAC temperature controls)
- Access Control
- Lighting Control
- Elevator Control
- Electrical Controls & Monitoring
- Thermal Metering
- CCTV Surveillance
- Parking Control
- Fire Alarm
- Point of Sale
- Electrical Metering
- Other special systems

SYSTEM INTERACTIONS



BMCS	BUILDING MANAGEMENT AND CONTROL SYSTEM	FAS	FIRE ALARM SYSTEM
ACMS	ACCESS CONTROL AND MONITORING SYSTEM	PCS	PARKING CONTROL SYSTEM
CCTV	CLOSED CIRCUIT TELEVISION SYSTEM	LCS	LIGHTING CONTROL SYSTEM
NVR	NETWORK VIDEO RECORDING	EMS	ELECTRICAL METERING SYSTEM
VBS	VIDEO BADGING SYSTEM	TMS	THERMAL METERING SYSTEM
VMS	VISITOR MANAGEMENT SYSTEM	ECS	ELEVATOR CONTROL AND MONITORING SYSTEM
SIS	SECURITY INTERCOM SYSTEM	POS	POINT OF SALE
EIS	EMERGENCY INTERCOM SYSTEM	LDS	LEAK DETECTION SYSTEM

Methods of Integration?

- Define specific information that can be shared between the candidate systems to achieve the Owner's goals
- Define the method that the information will be shared
  - Hardwired relays
  - Software interaction over an industry standard protocol
  - Software interaction with custom programming

The System Backbone

- Backbone – the system that will be the centralized host for passing information between systems
- Options
  - Automation System (i.e., building temperature control systems)
  - Access Control System
  - Separate Dedicated System
  - One of the “other” facility systems

The System Backbone

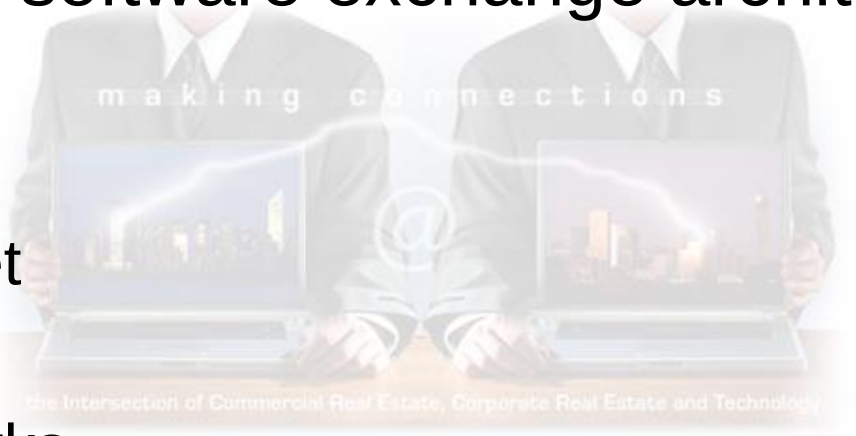
- What type of reliability is required?
- What protocols are anticipated?
- Which of the integrated subsystems are candidates for “hosting” the integraton.

Customized vs. “Off of the Shelf”

- Common “standard” software exchange protocols
  - Modbus, Modbus RTU
  - BacNET
  - LonTalk
  - Vendor specific standard protocols
    - Johnson Controls – N2
    - Siemens - FLN
- Common “open” software exchange protocols
  - ASCII
  - Modbus, Modbus RTU
  - TCP/IP

Customized vs. “Off of the Shelf”

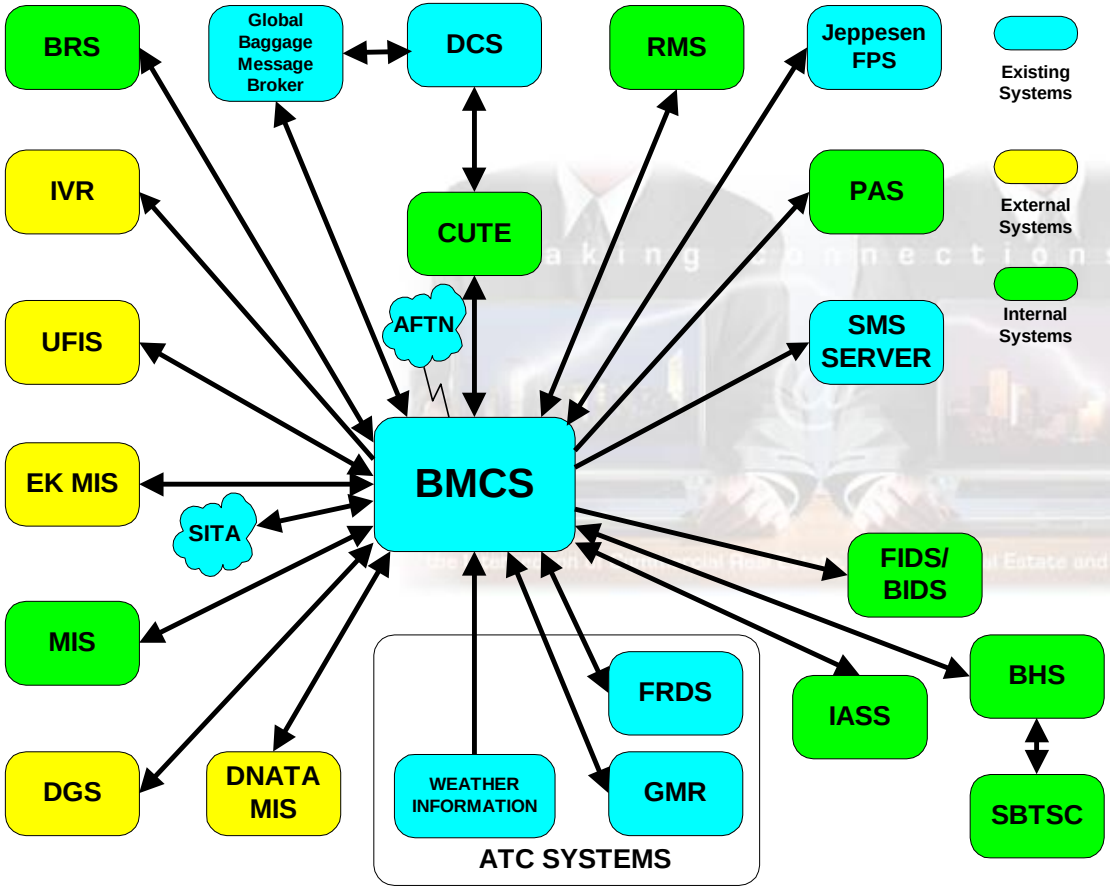
- Common software exchange architectures
  - RS 485
  - RS 232
  - Ethernet
  - MSTP
  - LonWorks
  - Arcnet
  - TCP/IP



Customized vs. “Off of the Shelf”

- Strive to solve your integration needs with standard architectures using open protocols
- If this can’t be easily sourced for your solutions, use standard protocols
- Minimize, at all costs, the use of custom programming

Case Study - International Airport



AFTN - Aeronautical Fixed Telecommunication Network
BHS - Baggage Handling System
BIDS - Baggage Information Display System
BMCS - Integrated Building System
BRS - Baggage Reconciliation System
CUTE - Common Use Terminal Equipment
DCS - Departure Control System
DGS - Docking Guidance System
DNATA MIS - Dnata Management Information System
EK MIS - EmiratesManagement Information System
FIDS - Flight Information Display System
FPS - Flight Planning System
FRDS - Flight Refuelling Display System
GMR - Ground Movement Radar
IASS - Integrated Aircraft Stand System
IVR - Interactive Voice Response
MIS - Management Information System
PAS - Public Address System
RMS - Resource Management System
SBTSC - Suspect Baggage Tracking System for Customers
SITA - Société Internationale des Télécommunications Aéronautiques
SMS - Short Message Service(cell phone messages)
UFIS - Existing Management Information System

AVIATION SERVICES INFORMATION SYSTEMS

Contracting Methods

- Single contractor responsible for all system
- Multiple contractors responsible for their system only with a third party contractor as integrator

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