Who is Suitelife Systems?

Suitelife Systems has over two decades of experience providing industry-leading Advanced MMC Systems to broadcasters around the world.

Our software-driven approach offers unmatched scalability and adaptability, all housed within the industry’s smallest footprints.

A few of the companies using our solutions:

- TEGNA
- CBS
- NBCUniversal
- Sinclair Broadcast Group
- Univision
- Cox Media
- Fox
- PBS
- HSN
- City of Sacramento
The first Axess system was deployed in 2002, for the NBC Hub 1.0, a recognized broadcast industry first. Since then Suitelife Systems has provided ground-breaking, and industry-leading systems across the nation.

Operational since 2010, Fox Television’s deployment of Axess is established at their Las Vegas Hub. This system monitors IT infrastructure at the hub supporting ITX content playout to each station, then signal path device monitoring to each transmitter.

Axess installations in the thousands are still operational for more than 15 years, maintained and supported, each system with it’s own history of successful fault management victories, defeating failures.
Suitelife Systems
Monitoring & Management

Advanced Monitoring & Control Use Cases

Fault Management & Monitoring Functional Objectives

• Increase visibility of operational information – technology & facility performance awareness
• Improve operational efficiencies
• Increase fault event response effectiveness
• Elevate overall operational confidence
  • Preempt fault event occurrences
  • Programmable alerts & notifications
  • Know what is happening when
  • Enable better trouble shooting & recovery
Overview

Suitelife Systems Active Monitoring

Key Features & Capabilities

- Monitoring by Exception – Provide operations a view of only primary concerns.
  - Root cause filtering: Present alarms caused by the root source of the problem, not subsequent alarms caused by the failure
- Intelligent Interfacing – Using modern device connection protocols such as RESTful API, SNMP, TCP-IP, BACnet for aggregating key datapoints
- Automation – Utilizing if/then Boolean logic to manage fail-overs of technology and facility operational concerns for staying on the air
- Northbound Data / API Integration – Share aggregated fault data and logs to enterprise dashboard for a more complete picture of operations
Each broadcast media client has unique requirements

Each opportunity presents unique challenges

What are the broadcast operation desired data points?

Which of these datapoints are most critical to your operation?

It’s your world, control it your way.
Suitelife Systems
Remote Site Use Cases

Our software approach yields better hardware solutions.

Suitelife Systems - Transmission Management

Protect Content Delivery

• Utilize Programmable Automation
  – A & B transmission paths - failover of every transmission type
    • Microwave / STL
    • IP Encoded Signals
    • Fiber

SCL macros in real time action

• Signal path switching occurs with cautionary/extreme fault event or transmission device failure

Programmable communications of all operational conditions

• SMS, Email, OVI screen with audible alarms
Protect Transmission Systems

- Axess Integration with RF Power monitoring units presenting real time data prevents catastrophic RF Power events
  - SNMP integration of RF Hawkeye Systems protects transmitters and RF transmission lines
  - Manages response to potential undetected line degradation
  - Monitors forward and reflective power on transmission lines, after transmitter output
  - Logs any changes with a location and time/date stamp
- Integration of RF Power Monitoring application into Axess OVI screen with programmable alarms
- Automated control based on user defined parameters
Protect Transmission Systems

RF Monitoring & Control
- RF Infrastructure and Mode Management
- Switch control interfacing
- Forward, reflective power performance
- Antenna control
- Temp sensors for reject load management

RF Performance
- Integrate with Avateq for consolidated fault management

Coolant Monitoring
- Nitrogen line pressure
- Coolant flow switch control & pump on/off
- Transmission line temp
Power Monitoring & Management

• Take advantage of Axess programmable notifications and flexible alarm levels
  – Monitor incoming main power with 3-leg sensors, 250v or 480v
  – Automate failovers from shore power to generator
    • Based on impending weather events
    • Power level fluctuations
• Receive notifications from genset & UPS systems
  – Power on
  – Return to shore power
  – Run time
Power Monitoring & Management

• Monitor generator fuel levels
  – Programmable SMS & email messages of cautionary fuel levels
  – Integrate with flow sensors to measure every drop
  – Add metering or fluid visuals to OVI screens
• Automate orders via email for fuel service deliveries based on cautionary fuel level thresholds
Weather Management

- Axess integration of weather data systems to preempt outages
  - Identify quickly the root cause of any fault
  - Fire up generator for impending thunder storm events
  - Manage HVAC systems to offset extreme external temperatures
- Utilize weather stations for managing remote sites

<table>
<thead>
<tr>
<th>Ultrasonic wind readings up to (92 MPH)</th>
<th>Apparent wind speed &amp; direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barometric pressure</td>
<td>Air temperature</td>
</tr>
<tr>
<td>Wind chill temperature</td>
<td>Dew point &amp; heat index temperature</td>
</tr>
</tbody>
</table>
Suitelife Systems - Remote Site Monitoring

Site Environment

- Ambient temperature, humidity, dew point site conditions
- Strategically placed water sensors
- Smart thermostat integration

Integration of disparate systems

- BACnet System integration (BMS)
- BACnet devices
- HVAC System
Suitelife Systems
Advanced MMC Use Cases

Our software approach yields better hardware solutions.

Remote Site Fault Management

• Operator Visuals and audible alarms enable key operational datapoint monitoring in each remote market & site
  • Studio & TX Site
• Hub operators assist local engineers identifying root cause of technical problems
• Hub operators confirm automated failover occurrences
• Scheduled failover device testing ensures readiness
• Monitoring by exception enables intelligent fault management, focusing on the events that matter most.
Remote TX Site Data Points

- Drill downs to each site for remote operator control

<table>
<thead>
<tr>
<th>TX On</th>
<th>TX RF on</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX Reset</td>
<td>TX1 select EXC A</td>
</tr>
<tr>
<td>TX1 select EXC B</td>
<td>TX1 to ANT</td>
</tr>
<tr>
<td>TX2 to ANT</td>
<td>XFER to GEN</td>
</tr>
<tr>
<td>Microwave TX In</td>
<td>Re-brander TX In</td>
</tr>
</tbody>
</table>

- Site information conditions:
  - Power
  - HVAC & Building Temperature
  - Tower Lights
Remote EAS Management

- In the Hub NOC application remote operators manage EAS event on behalf of DoE during off hours.
- Operators / Engineers acknowledge EAS Event once alarmed by MMC system.
- Recorded as an event in the MMC Log Reports.

Control Datapoints

<table>
<thead>
<tr>
<th>Manual Forward</th>
<th>Clear EAS Message</th>
<th>Send EAS RWT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear EAS Message</td>
<td>EAS Event Code</td>
<td>EAS FIPS</td>
</tr>
<tr>
<td>EAS Duration</td>
<td>Send Event Code-RWT</td>
<td>Send EAS ENCODE</td>
</tr>
</tbody>
</table>

Status Datapoints

<table>
<thead>
<tr>
<th>EAS Idle</th>
<th>EAS Message Transmitting</th>
<th>EAS Message Received</th>
</tr>
</thead>
</table>
Comprehensive Management

- Fault management of all disparate technologies
- 100's of sites / thousands of devices
- Complete site visuals, customized with audible alarms

Remote Market Compliance

- Loudness, CC, Frozen picture & black
- Traffic & As-run comparisons
- DPI & Ratings Reports
- TS performance parameters
- Full bandwidth returns or hi-res proxies
Integrated Remote Market Management

- Remote market OTA monitoring returns via Open Internet
- Remote fault management of TX site
- Remote management of return appliance
- Remote market compliance

Integrated Fault Management & Monitoring

- Remote site fault event logs integrated into LogPlayer for reviewing how fault event affected aired program
- Time/date search of fault event
- Programmable fault event reporting
Studio Management

- Utilize visual displays with audible alarms - surface datapoints critical to operations
- Increase the effectiveness to fault events directing the appropriate resource to the root cause
  - Eliminate running to reactionary alarms caused by a single fault
  - Programmable data channel grouping including device location, room & rack number
  - Programmable alarms & notifications
  - Root cause analysis
- Integrate with 3rd party trouble ticketing systems for tracking response and device performance data
- Integrate with 3rd party scheduling software
Integrated Management Systems

- Multi-site remote data aggregation into a MMC fault management NOC
- MMC feeds data northbound into corporate engineering dashboard for bigger picture view of operations.
- Manager of managers

Northbound Data Management Use Cases

- ATSC 3.0 multi-site or remote market corporate NOC
- Network broadcast or call letter studio management
- Critical business data info & trending
Next Steps

• Suitelife Systems is prepared to work with your engineering team developing a solution to meet your functional requirements
  – Understand key functional objectives
  – Outline budgetary costs based on a project plan
  – Develop a scalable deployment based on your priorities
• Eager to assist your “third arm” development.
Thank you!

Control your world, your way, all within the industry’s smallest footprints.

Simply.  Securely.  Instantly.