The Internet of things: A Smart Home Reality Check
Howard Behr
Vice President—Product Management
RealPage Utility Management

The Internet of things:
A Smart Home Reality Check
Let’s take a poll.
To register, send an sms to 22333 with the text ENERGYROI
Question 1: Who are you?

Send a sms to **22333** by texting A, B, C or D:

**A**  Asset owner/manager

**B**  Government

**C**  Service provider (media, legal or finance)

**D**  Other
Your poll will show here

1. Install the app from pollev.com/app
2. Make sure you are in Slide Show mode

Still not working? Get help at pollev.com/app/help
or
Open poll in your web browser

Join the conversation: #nmhcOPTECH
@apartmentwire
Question 2: Has your company started to roll out Smart Apartments?

Send a sms to 22333 by texting A, B, C or D:

A  Installed systems at 1 or more properties
B  Testing (or about to test) with some units
C  Planning to start within the next year
D  Waiting to see the opportunity evolve

Missed registration?
Please register by sending a sms to 22333 with the text ENERGYROI
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Smart for multifamily

- Consumer adoption is predicted to expand from 1.7 billion in 2014 to 9 billion devices in 2018 (iControl Network “State of the Smart Home” 2015 study)

- Devices for multifamily: thermostats, door locks, moisture sensors, light switches ... with voice-activated devices starting to become interesting options

- Ecosystems – Apple, Google and others

- Challenges for multifamily: Connectivity (z-Waves and ZigBee versus residents’ wifi)
Question 3: What is the top reason that you are (or might) be interested in using Smart Apartment technology?

Send a sms to 22333 by texting A, B, C or D:

A Building automation/intelligence
B Marketing to new renters
C ROI ($$$)
D Resident Satisfaction
E Sustainability program/LEED qualification
F Insurance Deductions
Your poll will show here

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Turning smart home into smart apartment

- Security and privacy
- Resident integration
- Infrastructure: Installation, maintenance
- Property support
- Insurance credits
- ROI—by apartment type
Contact Information

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Let’s Talk Myths of IoT

Felicite Moorman
StratIS EMS, Llc.
5 IoT Myths

1. Single Family IoT works for MultiFamily.
5 IoT Myths

2. My Property needs Internet EVERYWHERE.
5 IoT Myths

5 IoT Myths

4. IoT is expensive & complicated.
5 IoT Myths

- 5. The only ROI is via Revenue Lift.
Contact Information

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IoT 4 MFE
https://www.linkedin.com/groups/8459645
A Smart Home Reality Check

Anna Leger, Fairfield Residential
Smart Homes

Vendor Selection
• Start-up vs Mature
Pilot/Approach
• Predetermined vs upon request
• 10 units per each approach
• 3 month pilot
• Model and manager unit
Technology/Software
• Tri-band vs Zwave
Installation
• Who should be responsible for installation?
Smart Homes

Training
• Vendor provides training

Marketing Collateral
• Supplied by vendor with the ability to add branding

Technical and Non-Technical support
• Vendors provides all technical support for residents and staff

Measure Success
• Conduct monthly calls to discuss technical support & issues, demand for product and manager feedback
Contact Information

Anna Leger

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Smart Building Technology

Jim Sinopoli,
Smart Buildings LLC
Solar Panel Windows

How the solar window works
The solar window made by San Mateo's Pythagoras Solar is comprised of two panes of glass with small, horizontal rows of solar cells sandwiched in between. Light from above hits the cells and is collected as energy, while light from other directions simply passes through the window.

Source: Pythagoras Solar
IT Network for LED lighting
Indoor Positioning System
Bluetooth Beaconing
Supplemental DC Infrastructure

- IT Networks
- Data Centers
- Personal Uses of DC
- Renewables
- Electric Vehicles
- Storage
- Lighting
- Appliances
- DC Power Infrastructure
- Standards

Armstrong has a product called DC FlexZone, a ceiling suspension system infrastructure.
System to Acquire Occupancy Metrics

Join the conversation:
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@apartmentwire
Electrical Switchable Glass
## Monitoring the Envelope

### SENSORS FOR THE BUILDING ENVELOPE

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strain Sensor/Gauge</td>
<td>Stretched, Bent, or Deformed</td>
</tr>
<tr>
<td>Tilt meter</td>
<td>Changes in Horizontal Level; Ground or Structure</td>
</tr>
<tr>
<td>Accelerometer</td>
<td>Moving or Vibrating</td>
</tr>
<tr>
<td>Deformation Sensor</td>
<td>Fatigue, Vibration, Flex, Torsion, Bending</td>
</tr>
<tr>
<td>Temperature Sensor</td>
<td></td>
</tr>
<tr>
<td>Piezometer</td>
<td>Measuring Pressure or Compressibility</td>
</tr>
<tr>
<td>Displacement Sensor</td>
<td>Movement Between Expansion Joints</td>
</tr>
<tr>
<td>Humidity Sensor</td>
<td></td>
</tr>
<tr>
<td>Extensometer</td>
<td>Changes in the Length of an Object; Stress, Strain, Tensile</td>
</tr>
<tr>
<td>Corrosion Current Sensor</td>
<td>Corrosion Initiation and Corrosion Rate</td>
</tr>
<tr>
<td>Inclinometer</td>
<td>Slope, Tilt, Elevation or Depression With Respect to Gravity</td>
</tr>
</tbody>
</table>

- Moisture Intrusion
- Air Leakage
- Structural Loads
- Seismic Monitoring
- Monitor Openings in the Structure - Fenestrations

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Eye Tracking System

- Eye movement is directly related to decision making
  - Interior design
  - Signage
  - Way finding
  - Ergonomics of manual controls and kiosks
Contact Information

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Additional Resources
“Advanced Technology for Smart Buildings”