Panelists & Moderator Introductions
Panelists and Moderator

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Makarand Joshi  
Board member
IP-BLiS
(Internet Protocol for Building & Lighting Standards)

Not a new organization
existing organizations
working together
Today: Many Building Technologies...

There are more connected devices in Smart Buildings every day.
Today: Building Technologies in Silos

Each system evolved independently with their own proprietary solutions.
Trend: Convergence of Building Systems with IT...

This will result into a common secure IP-based infrastructure.
Trend: Facilitates IoT for Commercial Buildings...

No silos. No proprietary applications anymore.

It allows multiple systems to communicate together using cloud services & cloud computing
Our VISION
To make commercial buildings more responsive to the needs of users by promoting a secure, multi-standard, IP-based harmonized IoT solution

OUR GOAL
Harmonization of access to an IP network with connected building automation products allowing for better integration.
## Benefits of IP-BLiS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Single IP backbone</td>
<td>For all building automation products: IP (IPV6)</td>
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<tr>
<td>Common security</td>
<td>Common security in building networks</td>
</tr>
<tr>
<td>Simplified support &amp; administration</td>
<td>Eases IT department’s ability to support, eliminates need to know application protocol for building automation products</td>
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<tr>
<td>Seamless connectivity options</td>
<td>Seamlessly integrates wired and wireless connectivity options to reduce installation costs</td>
</tr>
<tr>
<td>Device groups and policies possible</td>
<td>Uses Common IP networks to allow for monitoring groups of devices instead of single devices</td>
</tr>
<tr>
<td>Scalability</td>
<td>Offers limitless scalability &amp; simple cloud integration</td>
</tr>
<tr>
<td>Application</td>
<td>Potentially: enables common semantic interpretation of data independent from the used application protocol</td>
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</table>
Each domain requires a gateway (GW) to translate proprietary protocols into IP. The building administrator has limited control over individual devices in each domain, and provisioning is complex.
PROBLEM: Why convergence on the application layer doesn’t (always) work

One shared gateway (GW) to translate protocol into IP. GW needs to be managed and trusted by all verticals simultaneously.

- Interdependencies between verticals
- Locked into one ecosystem
- Difficult to agree on roles & responsibilities
- Limited product choice / Vendor lock-in
- Less scalable
- No end-to-end encryption (trusted gateway)
- May end up with multiple networks

Lighting Devices
HVAC Devices
Other Devices
Lighting/HVAC/Other
Non-IP Network X
IP Network
Building Automation Domains
IT Infrastructure
Building administrators gain streamlined control over application domains, with real-time monitoring of the shared common network, simpler provisioning, and the possibility to extend this to multiple buildings through the cloud.
# IP-BLiS in progress

**General Marketing activities**

- [www.ipblis.org](http://www.ipblis.org), PRs, newsletters, different articles, social media plan…

**Best Common Practices**

- Analyzing recommendations and best practices we can promote via IP-BLiS

**Commercial Building Lifecycle**

- Creating our view of the benefits for the different actors in the lifetime of a building.

**IP-BLiS IoT Security Landscape**

- Communicating the regulation vendors will need to meet and how the IPBLiS recommendations will help the market.
Best common practices

IP-BLiS is about sharing a common IP network for all building automation tasks. Common practice and commonality are important to make building automation IT friendly.

IP-BLiS members contributed to an analysis identifying common best practices.

HIGHLIGHTS:

<table>
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<tr>
<th>Device Addressing:</th>
<th>IPv6 / NAT64 for IPv4 integration / SLAAC / UDP for group comm.</th>
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<tbody>
<tr>
<td>Service Discovery:</td>
<td>Operational ID / no reliance on stable IP / registry (where possible)</td>
</tr>
<tr>
<td>Security:</td>
<td>Application layer security by domain / shared network security</td>
</tr>
<tr>
<td>Physical Layer support:</td>
<td>Focus on Ethernet, Thread and WiFi / not excluding others</td>
</tr>
<tr>
<td>Infrastructure Requirements:</td>
<td>No permanent internet access required / IPv6 not required</td>
</tr>
</tbody>
</table>
Commercial Building Lifecycle

Presenter
Mak Joshi
CSA
Commercial Building Lifecycle

Based on building objectives, specify, plan and acquire devices/assets. Physically mount and wire devices & perform a basic functional test.

- **Planner/consultant**
- **Installer**
- **System Integrator**
- **Facility manager / Occupant**

**Specification, planning and installation**

- Involve various dimensions. Existing vs. new networks and regulatory compliance

- **Commissioning**
  - Integrate the lighting/HVAC/electrical/security systems

- **System integration**

- **Life-cycle management**
  - Buildings are dynamic. Tooling crucial for diagnosis, maintenance
  - System behavior may be reconfigured by configuration engineer/occupant
  - Facility Manager and IT responsible for smooth operation

**Manufacture and introduce asset**

- **Manufacturer**
- **Wholesaling**

**Circular economy and waste disposal**

- **EOL and Dispose**
# IP-BLiS IoT Security Landscape

## Secure IoT Regulation and Requirements:

<table>
<thead>
<tr>
<th>Act/Order/Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td>IoT Cybersecurity Improvement Act of 2020</td>
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<tr>
<td>NIST 8259D (USA)</td>
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<tr>
<td>The Biden Executive Order on IoT security</td>
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<tr>
<td>Internet-connected radio equipment and wearable radio equipment</td>
<td></td>
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<tr>
<td>ETSI EN 303 645 (EU)</td>
<td></td>
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<tr>
<td>The EU cybersecurity certification framework</td>
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## Critical Features:

- Application-Level Security
- Secure communication over multiple IP segments

## Common Provisions:

- Device Identity
- Device Configuration
- Data Protection
- Logical Access to Interfaces
- Software Update
- Cybersecurity State Awareness
- Device Security
Q1 - Commercial Building Lifecycle

How will the commercial building lifecycle change with IP-based standards?
Q2 - Commercial Building Lifecycle

Are people already using or expecting to use remote access? What roles can be done remotely?
Today, different field bus (Device network) technologies are used in building automation. Even the same technology may be deployed multiple times because it is difficult to manage integration. How do you see this change with IP-BLiS? What will change due to IP-based standards?
Sharing the network between different application domains is often considered problematic due to coexistence and security concerns. What do you expect happening in the future and how can IP-BLiS support this?
How has Covid-19 influenced the cybersecurity landscape?
Q6 - IP-BLiS IoT Security

What are the implications of the Biden’s Cybersecurity Executive Order in May?
Thank you very much

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