Interoperability Across BA and LC Domain Standards for Common Network Services

Fairhair Alliance

Klaus Waechter, Siemens
Fairhair Alliance Vision

The Fairhair Alliance vision is a future where building automation and lighting control systems utilize the Internet of Things.

- Share a common networking infrastructure based on IEEE and IETF standards.
- Interoperability across BA and LC domain standards for common network services.
- Domain standard application levels and eco-systems evolved into the IoT space.
Fairhair Alliance Mission

The Fairhair Alliance mission is to define and specify:

- IP-based connectivity solutions for resource-constrained devices for all interested application standards and eco-systems.
- Unified solutions for network services and functions closely tied to the transport layer.
- Initial focus on competitive, low-cost and state-of-the-art wireless solution that can claim the IoT space for Building Automation and Lighting Control.
Our Sponsor Members
Our Regular Members

(KNX staff has signed up as “Regular Member” under NDA)
Our Liaison Members
Where does the name come from?

**Harald Fairhair** *(Harald Hårfagre; c. 850 – c. 932)* is remembered by medieval historians as the first King of Norway.

Harald was regarded as having unified Norway into one kingdom. The unification of Norway begins with a marriage proposal that resulted in rejection and scorn from Gyda, the daughter of Eirik, king of Hordaland. She said she refused to marry Harald "before he was king over all of Norway".

Harald was therefore induced to take a vow not to cut nor comb his hair until he was sole king of Norway, and when he was justified in trimming it ten years later, he exchanged the epithet "Shockhead" or "Tanglehair" for the one by which he is usually known.
Why does the BA and LC industry need the Fairhair Alliance?

- The BA and LC market needs a single IP-based networking standard that all building automation and lighting control devices in a building can live on, while maintaining the value and differentiation of the various application ecosystems that exist today.

- No state-of-the-art and cost efficient solution suitable for building automation and lighting control using the Internet of Things is currently available.

- A single IP-based networking standard enabling the use of common networking infrastructures, installation techniques, components, IT management tools and expertise.

- The Fairhair Alliance is a neutral body with respect to the application ecosystems, providing a coordinated and strong voice of the market to relevant consortia which define IoT solutions (e.g., IEEE, IETF, Thread).
Fairhair Alliance USP’s

- Companies from a single Building Service domain cannot break down the barriers existing between the different Building Services by themselves. It requires a cross-domain concerted effort, working together and making common IT technology choices.

- Fairhair will be an enabler for high performing, interactive, better quality and smart buildings, providing a greater degree of comfort and flexibility for owners, users, facilities management, property developers and manufacturers.

- Fairhair Alliance members bring BA and LC application and market know-how not available in IEEE and IETF into the IP connectivity and IoT discussion.

- The Fairhair Alliance is a neutral body regarding branding and IPR policies.
Technical Mission of the Fairhair Alliance

1. Define resource-constrained solution draft specifications for KNX, BACnet and ZigBee, for adoption and future maintenance as a specification by respective standards developing organizations.

2. Define a unified solution for the Physical through Transport OSI layers and a unified solution for application services that are closely tied to the transport layer, such as device & service discovery, sleepy devices support, and security.
Overview, Players and Responsibilities

IETF created the building blocks for IPv6 and Fairhair Thread to develop and certify the lower part of the 802.15.4 IP solution.

IEEE has developed the PHY/MAC technologies.

Web services solutions under development in:
- KNXX Association
- BACnet SSPC135
- ZigBee Alliance

Fairhair to develop - ‘draft specifications’ for resource-constrained solutions for KNX, BACnet and ZigBee.

Fairhair to develop - a unified solution for application services that are closely tied to the transport layer.

IEEE: L1-2
IETF: Layer 3-7

IETF created the building blocks for IPv6 and Fairhair.

802.15.4 (2006) MAC/PHY
6LoWPAN
IPv6 & routing protocols
CoAP
DTLS (or similar)

Service Set
Service Set
Service Set
/Application
/Application
/Application

Network Management
Service Discovery
Security Architecture
Resource Meta Model

Domain: L8+

UDP
802.11 MAC/PHY
802.11 MAC/PHY
802.3 MAC/PHY

Thread to develop and certify the lower part of the 802.15.4 IP solution.

Klaus Waechter, Siemens
Why Should My Company Join Fairhair Alliance?

In building automation the classic I/O modules business will decrease when actors and sensors start using IoT and directly communicate with an automation station. Similar scenarios has happened to other industries in earlier days:

- **VOIP**
  - At the time when VOIP has been introduced in the market, the classic telephone companies strongly believed that nobody would be interested to move from the telephone cabling over to Ethernet. Large companies have simply disappeared, meanwhile in most of the European countries the classic phone lines will be ultimately switched off in the next two years.

- **Analogue video cameras**
  - The same as for classic phones happened a bit later to the analog camera business. Today the whole “Virtual fence” business is made by digital cameras only.

If you agree our industry should prepare itself for IoT, the time is right to join Fairhair Alliance and become a part of the future of building automation industry.
A WPAN (wireless personal area network) is a personal area network. A network for interconnecting devices centered around an individual workspace - in which the connections are wireless.
Conclusion

Our vision will not emerge by itself!

To realize this vision, we need to work together to, in a pre-standardization sense, align on:

1. A unified solution for the Physical through Transport OSI layers for the most relevant physical media, starting with WPAN 802.15.4

2. A unified solution for network services that are closely tied to the transport layer, such as device & service discovery, sleepy devices support, security, addressing, resolution, and network management support

3. A resource-constrained RESTful web services solution

And promote this in the relevant domain standards bodies and alliances: BACnet, KNX, ZigBee Alliance
Membership Options

- Sponsor Member
- Regular Member
- Liaison Member
- Academic Member
## Member Fees and Benefits

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<thead>
<tr>
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<th>Liaison or Academic</th>
<th>Regular</th>
<th>Sponsor</th>
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<tbody>
<tr>
<td>Receive member communication</td>
<td>✓</td>
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<tr>
<td>Participation in general or annual meetings</td>
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<td>Access to members-only website</td>
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<tr>
<td>Use of alliance logo</td>
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<tr>
<td>Participation in press articles &amp; interviews</td>
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<tr>
<td>Access to final alliance deliverables</td>
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<tr>
<td>Chairing of committees and/or working groups</td>
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<tr>
<td>Utilization of Fairhair Alliance logo on products</td>
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<td>Access to draft deliverables</td>
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<td>Participation and vote in working groups</td>
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<td>Member of Steering Group</td>
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### Annual Fee
- **Liaison or Academic:** USD 0.-
- **Regular:** USD 10000.-
- **Sponsor:** USD 20000.-
Contacts

info@fairhair-alliance.com

Ruud van Bokhorst, Secretary General
ruud.van.bokhorst@philips.com

Klaus Waechter, Treasurer
waechter.klaus@siemens.com

www.fairhair-alliance.org