ILA System Architecture
Release 1.0

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The ILA System Architecture (SA) specifies the main components and interface requirements of a technology-independent system architecture for indoor location.

The SA has been designed to support a wide range of venues: from the very small (e.g. stand-alone business) to the very large (e.g. corporate campus) to the very distributed (e.g. worldwide retail chain).

The SA is based on open interfaces in order to support multi-vendor environments for indoor location.

While the SA in itself is generic and technology agnostic, the focus of the first public release of the SA is on Wi-Fi and BT.
System Architecture Network Elements (I)

- **Mobile Device**
  - An electronic device (nomadic or mobile) whose location within a venue is of interest to a location client residing on the Mobile Device or in the network.

- **Location Server**
  - A network server that provides a Mobile Device’s location to a location client and/or provides assistance data to the Mobile Device. A Location Server generally supports both position calculation as well as assistance data provision.

- **Access/Location Network**
  - Any network that can be used for location but with current focus on Wi-Fi and BT.

- **Access Location Network Database**
  - A network data base that stores and provides an Access/Location Network almanac to the Location Server. The Location Server may use this information to calculate the Mobile Device’s position and/or to provide assistance data to the Mobile Device.
System Architecture Network Elements (II)

- **Map Database**
  - A network database that stores and provides map data used for location and/or presentation.

- **LBS Application Server**
  - A network server that provides location related content and services to a requesting entity and that is able to request and receive the position of a Mobile Device whose position is the subject of the location related content.

- **Privacy Policy Database**
  - A network database that records and provides to the Location Server the privacy policies affecting a Mobile Device.
System Architecture Interfaces

- The ILA SA Interfaces are intended to be open interfaces enabling interoperability in a multi-vendor environment.
- The ILA SA White Paper provides a high level definition of the information that ILA Network Elements exchange across these interfaces.
- The ILA does not define the ILA SA Interfaces itself but is working with external Standards Developing Organizations to develop these interfaces (e.g. OMA for Interface 3 and 5, IEEE and BT SIG for Interface 2).
Supported Modes of Operation

**Positioning Modes**

- **Network Centric**
  - **Network Initiated**
    - Location Server initiates with Access/Location Network
    - Using measurements from Access/Location Network
    - Position calculation function is in Location Server
    - The Mobile Device is not actively involved in the positioning process.
    - The Network determines the Mobile Device’s position.

- **Mobile Device Centric**
  - The Mobile Device is actively involved in the positioning process.
  - The Network or the Mobile Device may determine the Mobile Device’s position.

- **Mobile Device Assisted**
  - Using measurements performed/enabled by the Mobile Device
  - Positioning calculation function is in Location Server
  - **Network Initiated**
    - Location Server initiates with Mobile Device
  - **Mobile Device Initiated**
    - Mobile Device initiates with Location Server

- **Mobile Device Based**
  - Using measurements from the Mobile Device
  - Positioning calculation function is in the Mobile Device
  - **Network Initiated**
    - Location Server initiates with Mobile Device
  - **Mobile Device Initiated**
    - Mobile Device initiates with Location Server
The ILA SA White Paper provides high level end-to-end system level definitions using message flow diagrams for typical use cases.

Example: Location Aware Content
The ILA will continue to drive the architecture for indoor location based on market requirements and lessons learned from actual deployments.

The ILA will continue to work with external SDOs to create open interface specifications supporting and enabling the ILA architecture.