

Solving “Internet of Things”



Multitude of Standards

Internet of Things (IoT) and machine-to-machine (M2M) technologies are evolving quickly, and this is reflected in the number of standards arriving to address market needs. Networking standards such as LoRa and SIGFOX define low power/far reach technologies for M2M device connectivity. IoT standards such as AllSeen, OIC, Thread, oneM2M and others are providing individual frameworks for device manufacturers.

Multiple connectivity protocols, numerous standards, and proprietary solutions, plus the challenge of implementation, creates significant risks for developers, including:

- Solutions with insufficient **security** can compromise system data;
- Inefficient or defective IoT devices (sensors, actuators) may add network signaling traffic, which impacts network services for all users;
- Shorter **device life spans** may result from poor implementation and add unnecessary cost;
- Reduced **performance**, which could result in delayed communications, service quality degradation and even service outages;
- Forward and backward **interoperability** issues;
- Poor **portability** and **scalability** across operating systems and from low level devices to high-end appliances.

Any or all of the above issues will affect the success of an IoT application and the **end-to-end service experience**.

To learn more, download our white paper: M2M Software Development in an Evolving Field at <http://bit.ly/1O2yt9G>

Customers expect state of the art connectivity and secure capabilities, so use the tools to make this happen

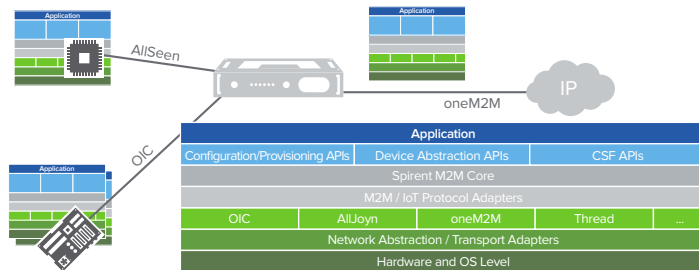
Spirent IoT Client Device Platform

Multiple IoT standards require similar functionalities to be supported by the IoT devices. Spirent’s solution can abstract these as common services functions, and they can be classified as per drawing below.

Common Services Functions		
Application Service Layer Mgmt	Communication Handling	Data Management and Repository
Discovery	Group Management	Location
Registration	Security	Charging and Accounting
Subscriptions and Notifications	Network Integration / Device Triggering	Device Management

These Common Services Functions, implemented for different standards, enable developers to re-use devices in networks and deployments, saving significant development time.

- **Interoperability**, develop once, runs on any network and on any device
- Support of **multiple** M2M/IoT **standards**, Interconnects multiple M2M/IoT protocols (OIC, AllSeen, Thread, oneM2M, MQTT, CoAP)
- Well defined APIs and data **abstractions**
- High degree of customization
 - Code size and optimization
 - Conditional compilation – include only what is necessary
 - Memory consumption
- **Highly secure**
- Highly scalable
- Carrier grade performance – over 10,000 transactions per second
- **Extensibility** – well defined APIs to add new IoT protocols
- Future proof – we track and implement all new versions of the standard
- Integration with various **“big data”** platforms
- Backward-compatible APIs
- Support for various transports (HTTP, MQTT, CoAP, WebSockets)
- C APIs
- Full source code
- Highly portable
- Protocol Abstraction
- Enablement of remote test/monitoring capabilities



With Spirent, you can focus on your IoT solution and not worry about your customer experience

Spirent Communications enables innovations in communications technologies that help connect devices and people. Whether it is service provider, data centers, enterprise IT networks, mobile communications, connected vehicles or the Internet of Things, Spirent solutions are working behind the scenes to help the world communicate and collaborate faster, better and more securely. The world’s innovators rely on Spirent expertise to help them design, develop and deliver best-in-class solutions to their customers.

To help IoT developers, Spirent offers a number of solutions, supported by our expertise in standards-based voice and video over IP (V2oIP), an extensive inventory of intellectual property and on-going investments in R&D. In 2014, Spirent acquired Radvision’s Technology Business Unit to expand its capabilities in interoperability and standards support.

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