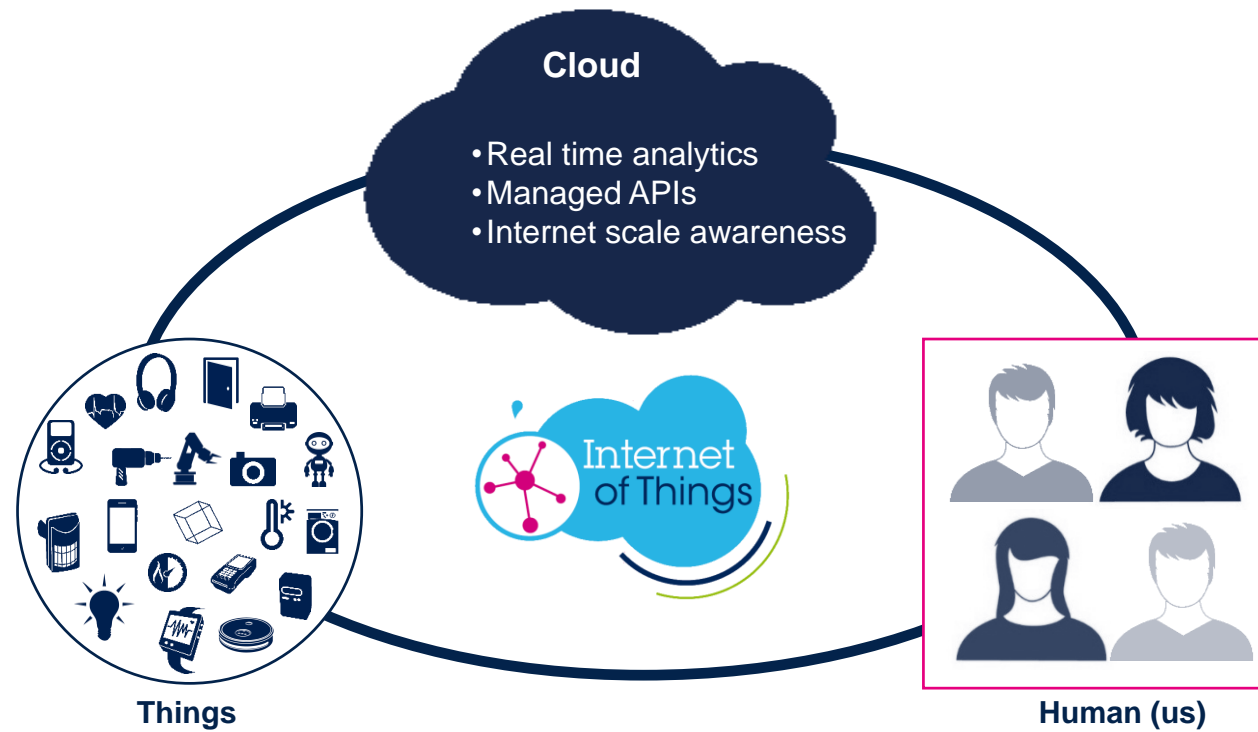# IoT: Cloud Connectivity Expansion Packages for STM32Cube

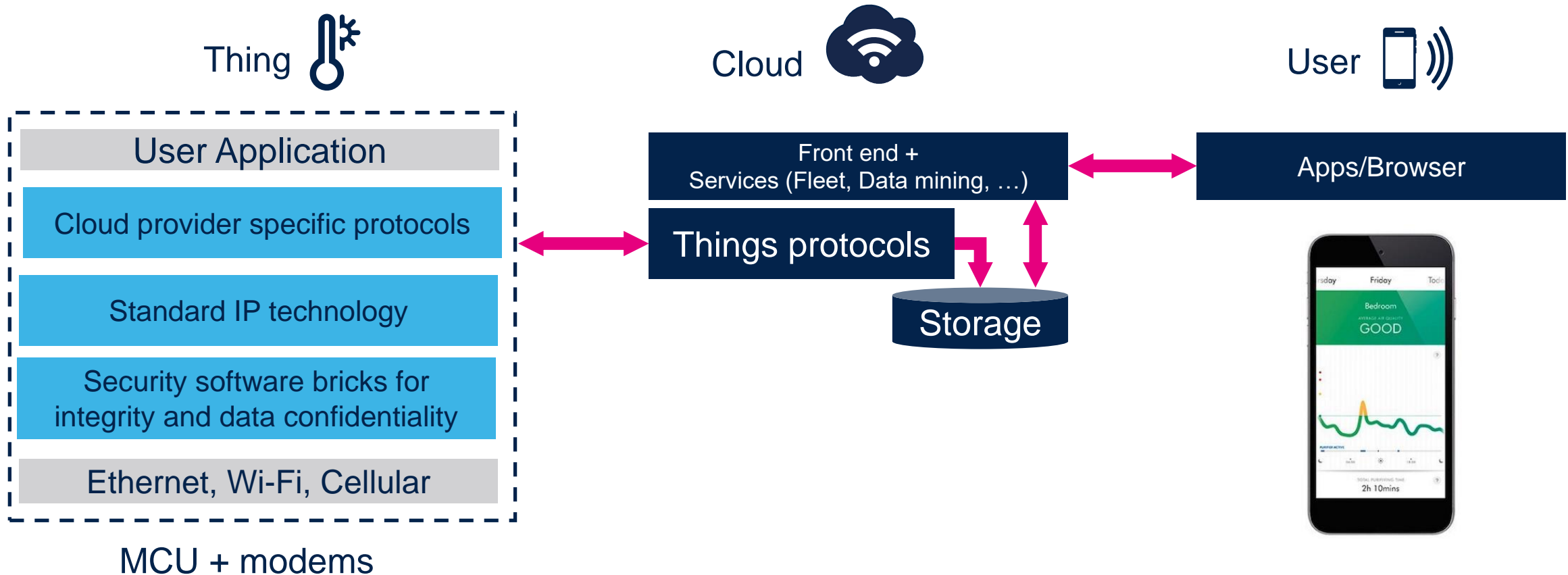While M2M network connects machines in closed systems,
IoT enhances the existing networks through an intelligent cloud

Cloud

- Real time analytics
- Managed APIs
- Internet scale awareness

Internet of Things

Things

Human (us)

life.augmented

Software Bricks for Cloud Connectivity

From Thing to Remote User from any location based on IP technologies

Thing

Cloud

User

User Application
Cloud provider specific protocols
Standard IP technology
Security software bricks for integrity and data confidentiality
Ethernet, Wi-Fi, Cellular

MCU + modems

Front end + Services (Fleet, Data mining, …)
Things protocols

Storage

Apps/Browser

Bedroom
AVERAGE AIR QUALITY
GOOD

TOTAL PURIFYING TIME
2h 10mins

STM32Cube Expansion Packages for IoT

Software Development Kits enabling developers to quickly connect their devices to any Cloud service provider

User Application

IoT STM32Cube Expansion Packages

Cloud provider specific protocols

Standard TCP/IP technology

Ad-hoc security software bricks

Ethernet, Wi-Fi, Cellular

STM32 + companion chips

Cloud connectivity, data integrity and confidentiality

Reduce Development Cost thanks to the pre-configured ST applicative examples
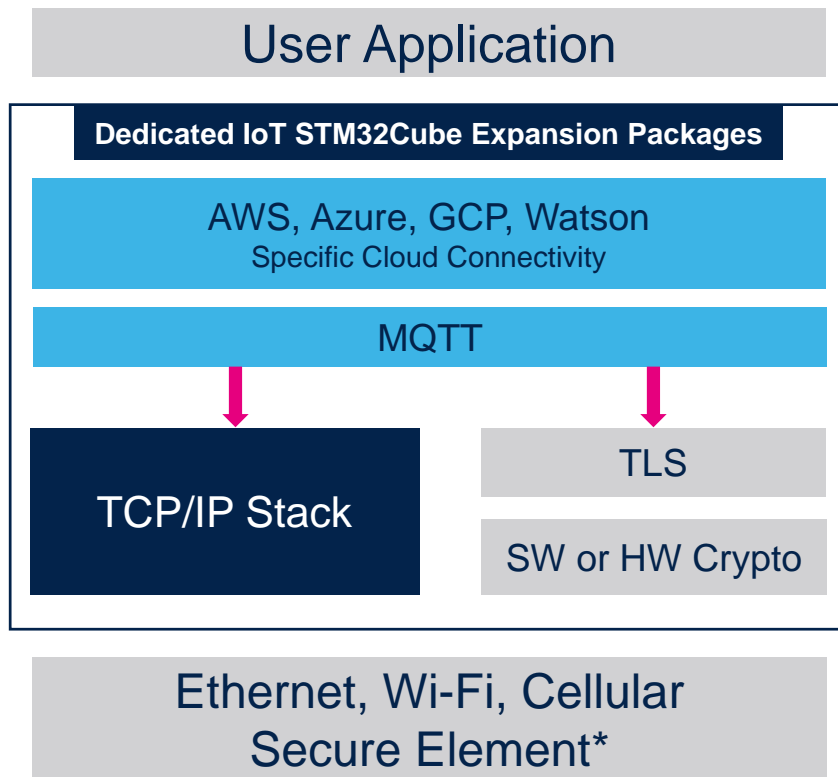
Secure Firmware Upgrade over-the-air (FUOTA)

Flexible and hardware agnostic API to support different connectivity technologies

Dedicated STM32Cube Expansion Packages

Connection to Tier 1 Cloud service providers made as easy as 1, 2, 3

User Application

Dedicated IoT STM32Cube Expansion Packages

AWS, Azure, GCP, Watson
Specific Cloud Connectivity

MQTT

TCP/IP Stack

TLS

SW or HW Crypto

Ethernet, Wi-Fi, Cellular
Secure Element*

Dedicated to Tier 1 Cloud service providers

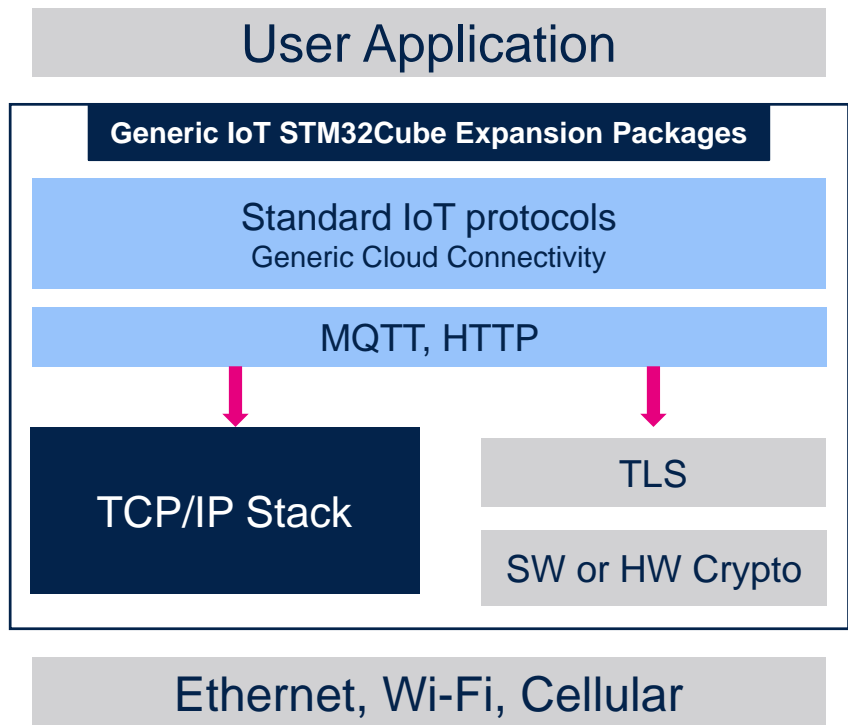- X-CUBE-AWS
- X-CUBE-AZURE
- X-CUBE-GCP
- X-CUBE-WATSON

Comprehensive SW solutions

- Cloud connectivity and security (MQTT, TLS)
- Support of native Cloud providers services*
- Applicative examples preconfigured for ST boards
- Ethernet, Wi-Fi and Cellular technologies

* Available for X-CUBE-AWS

Generic STM32Cube Expansion Package

Connection to any Cloud service provider made as easy as 1, 2, 3

User Application

Generic IoT STM32Cube Expansion Packages

Standard IoT protocols
Generic Cloud Connectivity

MQTT, HTTP

TCP/IP Stack

TLS

SW or HW Crypto

Ethernet, Wi-Fi, Cellular

Dedicated to generic IoT connectivity

- X-CUBE-CLD-GEN

Comprehensive SW solutions

- Cloud connectivity and security (MQTT, HTTP, TLS)
- Applicative examples preconfigured for ST boards
- Ethernet, Wi-Fi and Cellular technologies

Distribution

**Available for FREE and in source format
under business-friendly license terms from st.com**

X-CUBE-AWS	**X-CUBE-AZURE**	**X-CUBE-GCP**
• www.st.com/x-cube-aws	• www.st.com/x-cube-azure	• www.st.com/x-cube-gcp
X-CUBE-WATSON	**X-CUBE-CLD-GEN**	**Documentation and licensing**
• www.st.com/x-cube-watson	• www.st.com/x-cube-cld-gen	• User Manuals for each package • Mixed license distribution model (SLA0048)

STM32L4+ Discovery kit IoT node allowing out-of-the-box development with X-CUBE-AWS
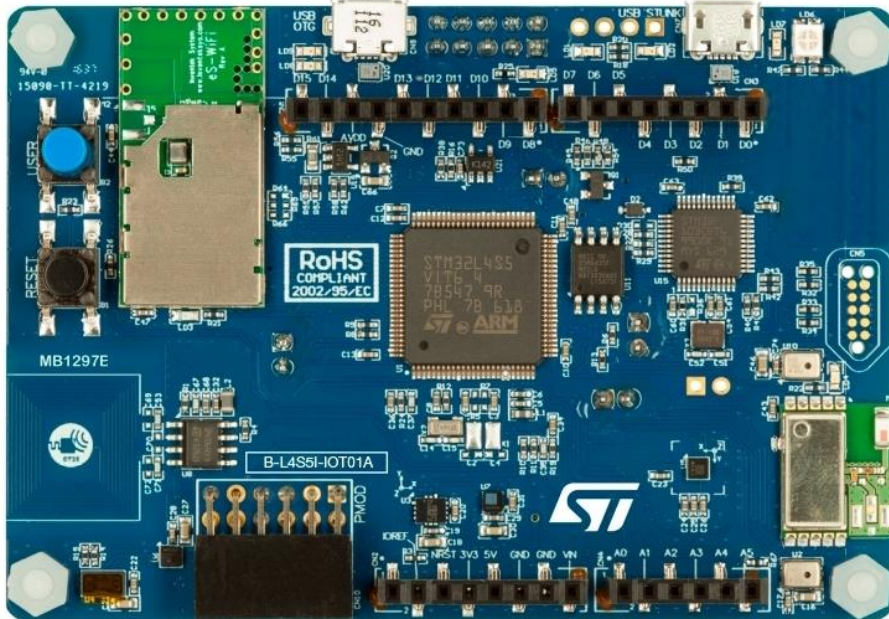
B-L4S5I-IOT01A

ISM43362-M3G-L44 802.11 b/g/n compliant Wi-Fi® module

Multiway sensing, ARDUINO® Uno V3 and Pmod™ connectivity

Supported ST boards: Ethernet, Wi-Fi and Cellular

ST boards allowing out-of-the-box development with X-CUBE-AZURE, X-CUBE-GCP, X-CUBE-WATSON and X-CUBE-CLD-GEN
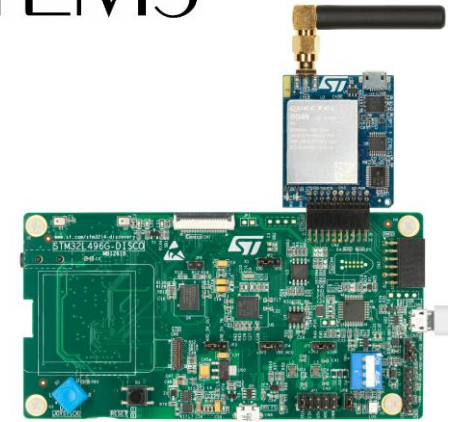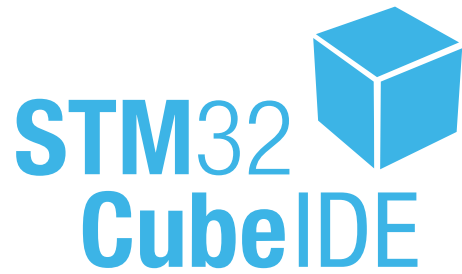

STM32F413H-DISCO

STM32F769I-DISC1
STM32F769I-DISCO

B-L475E-IOT01A1
B-L475E-IOT01A2

P-L496G-CELL02

Example projects preconfigured for STM32CubeIDE, Arm® Keil®, IAR, and ST boards

Full integration of Connectivity, Cloud services and Security

STM32Cube Expansion packages for Cloud

Integration of specific Cloud providers SDKs

Security Integration

IoT Protocols

Applicative Examples

Abstracted Connectivity Technologies

Developers benefit from

- Easy and straightforward native support of Tier 1 Cloud providers services*

- Secure Firmware Upgrade over-the-air (FUOTA) reference implementations for quicker device management prototyping

- Easy and fast learning curve thanks to the STM32Cube user experience for hassle-free Cloud connectivity

www.st.com/x-cube-cloud

* Available for X-CUBE-AWS

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Thank you

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