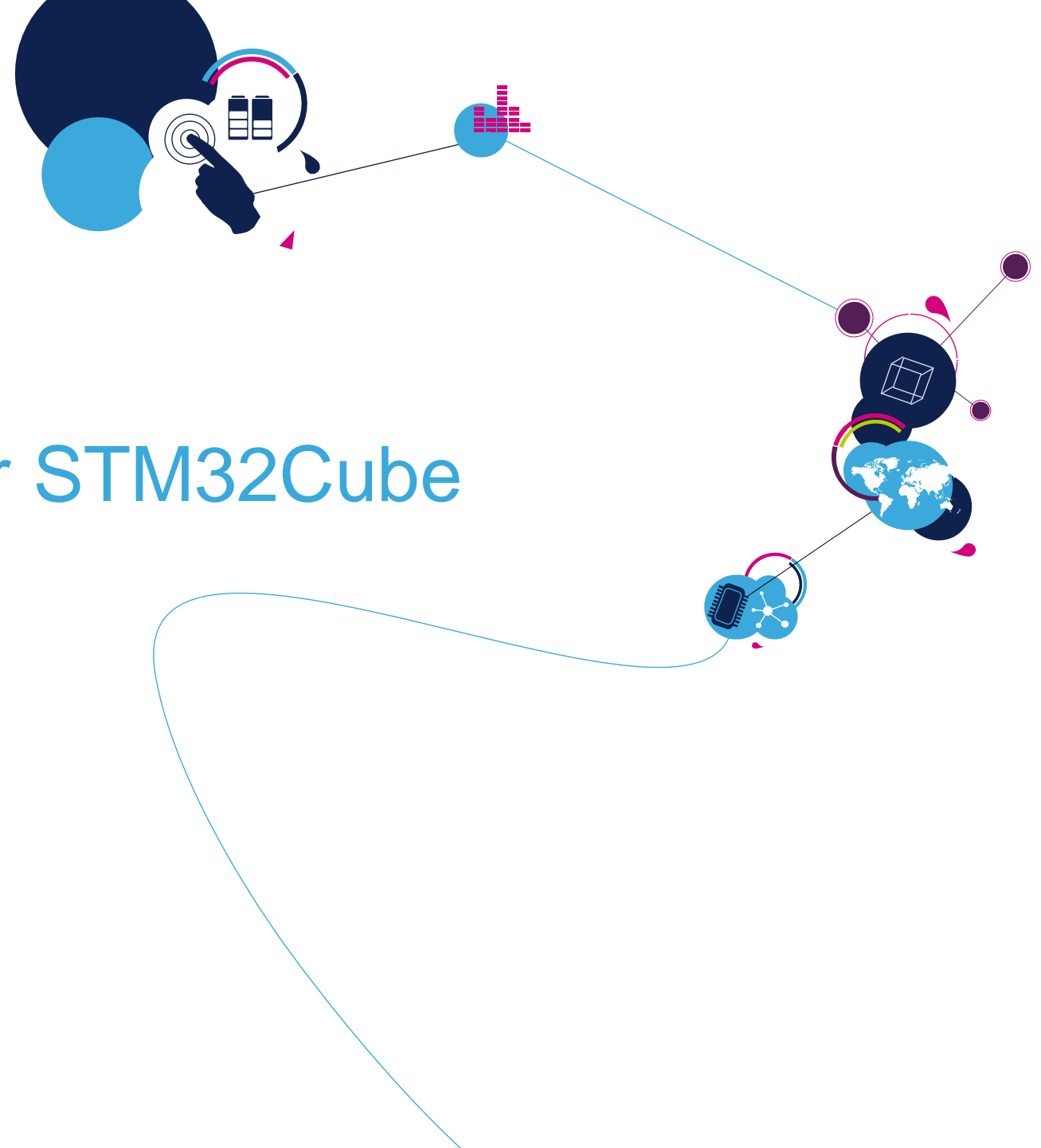
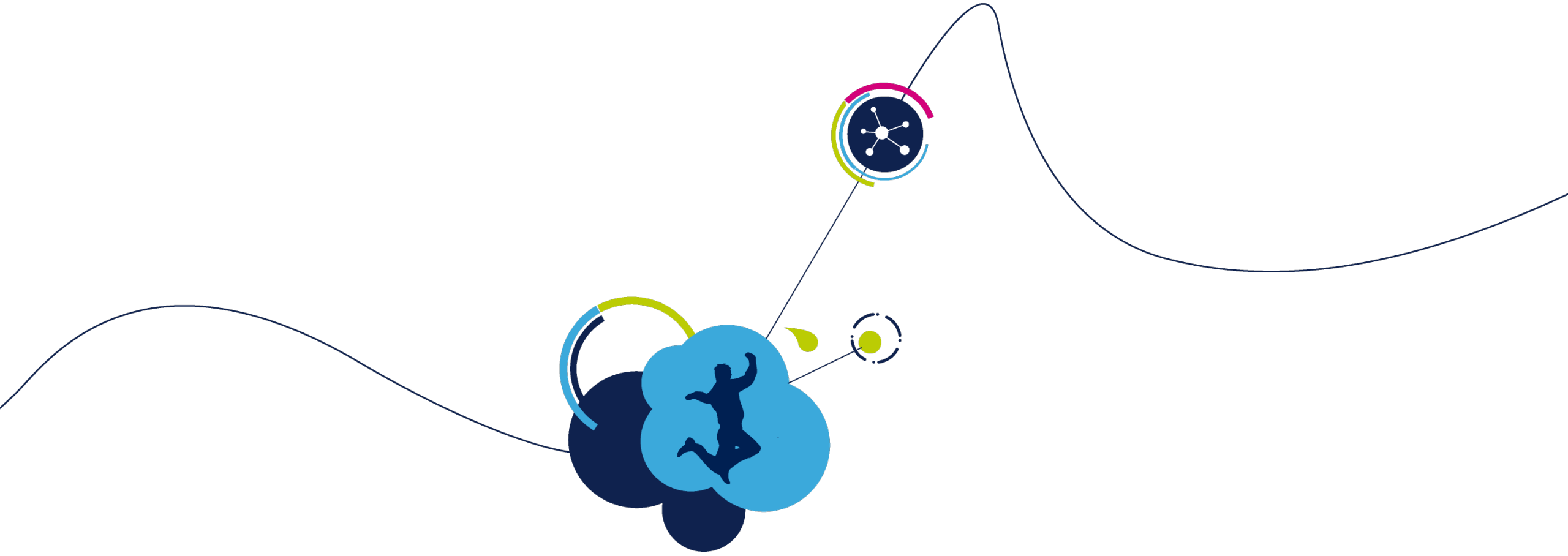


IoT: Cloud Connectivity Expansion Packages for STM32Cube

Overview

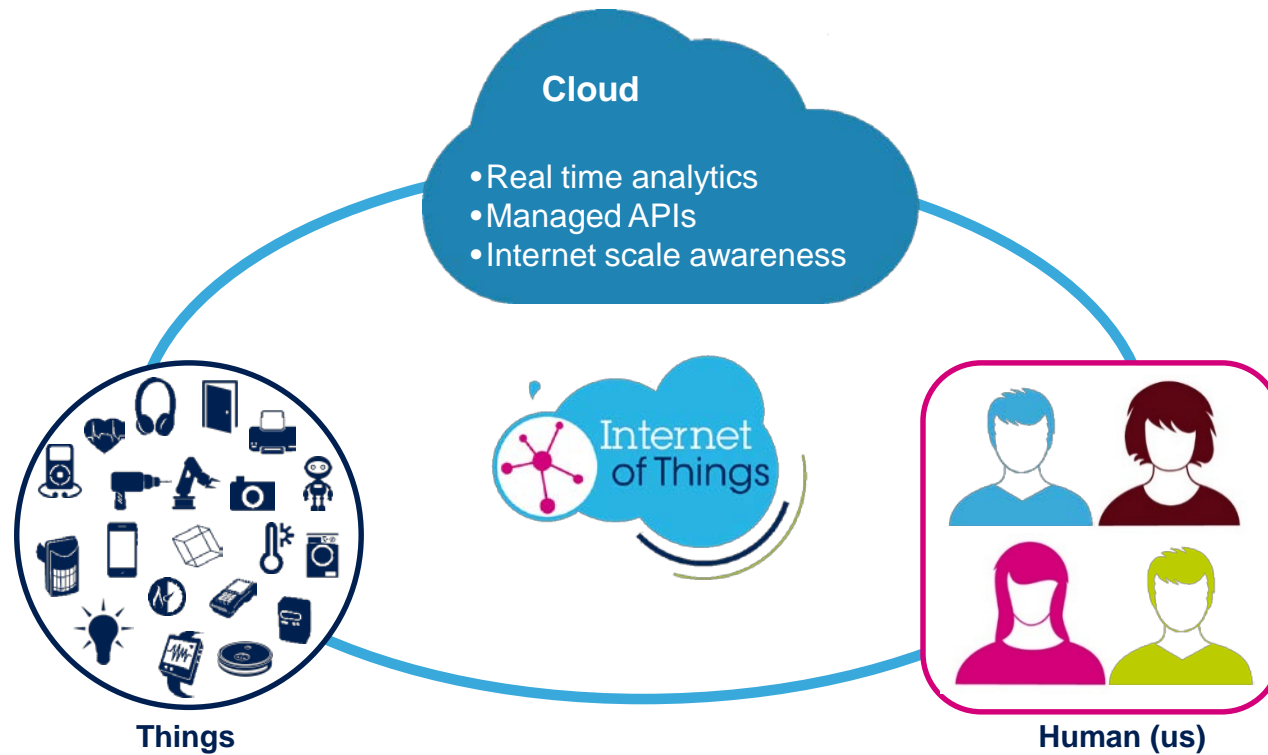




IoT and Cloud general considerations



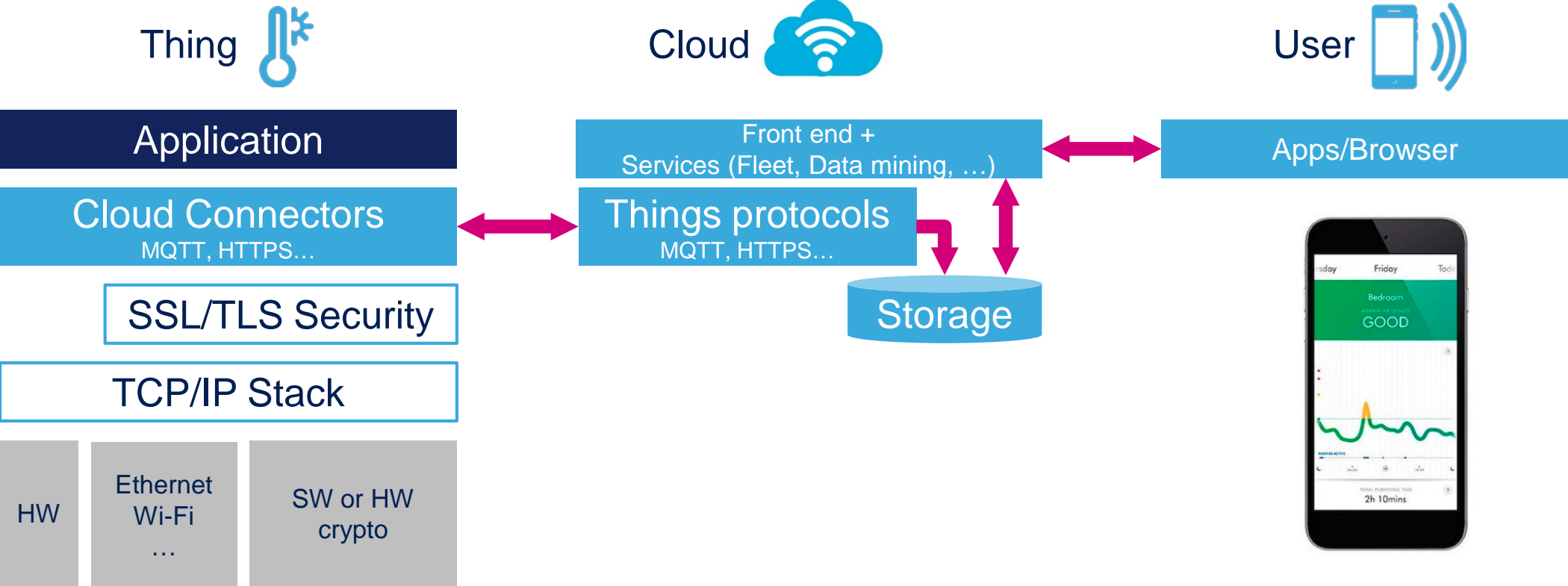
While M2M network connects machines in closed systems, **IoT enhances the existing networks** through an intelligent cloud

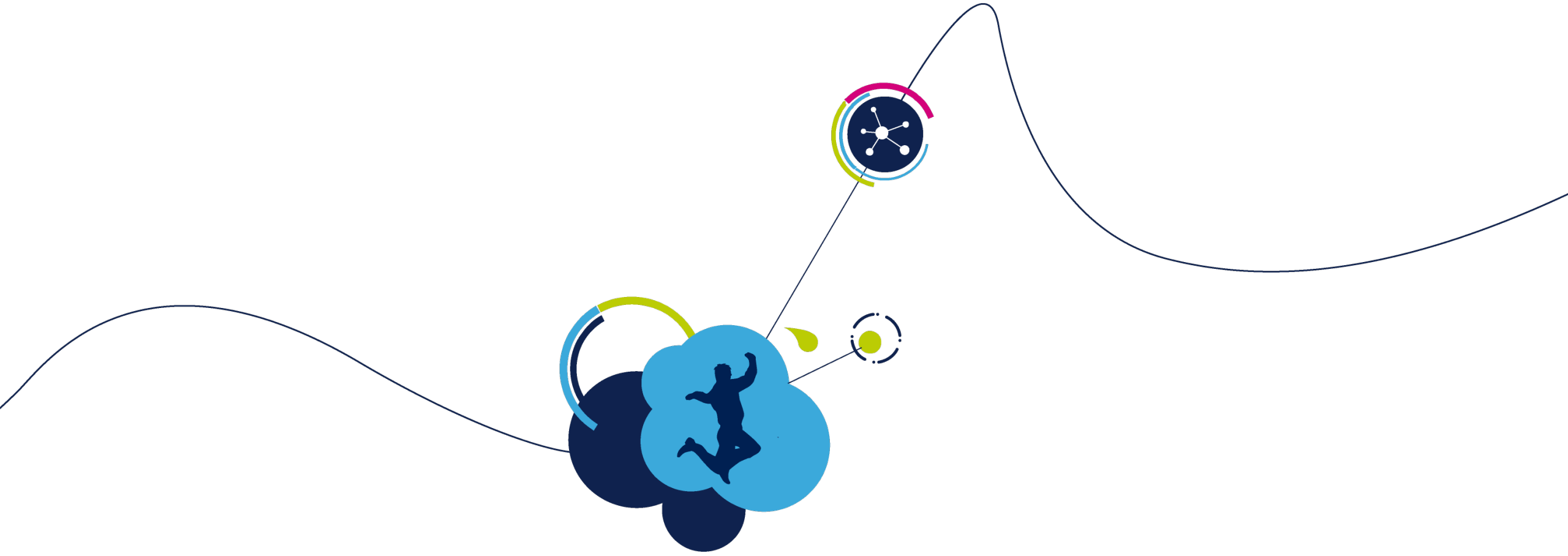


Connectivity bricks for Cloud connection

Top technical view: TCP/IP based

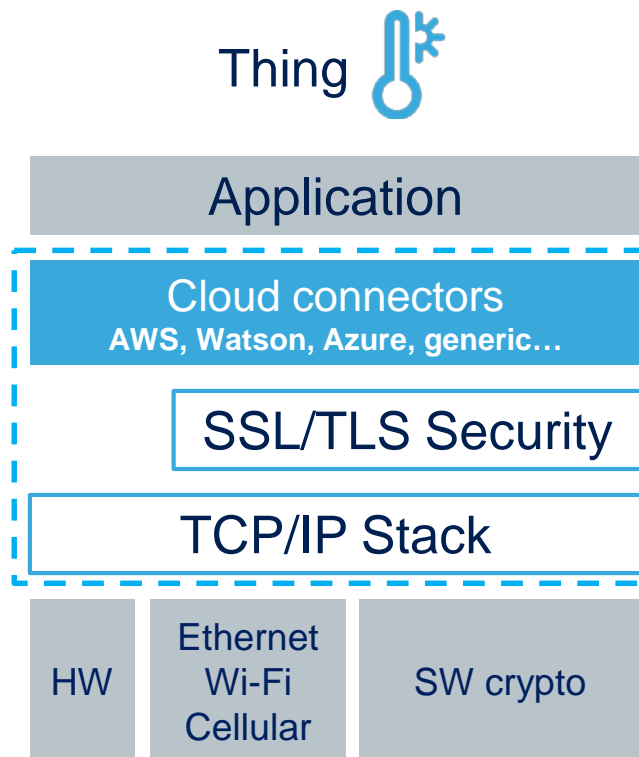
From Thing to Remote User from any location





ST Cloud connectivity Software Development Kits (SDKs)

Enabling customers to quickly connect to several Cloud providers

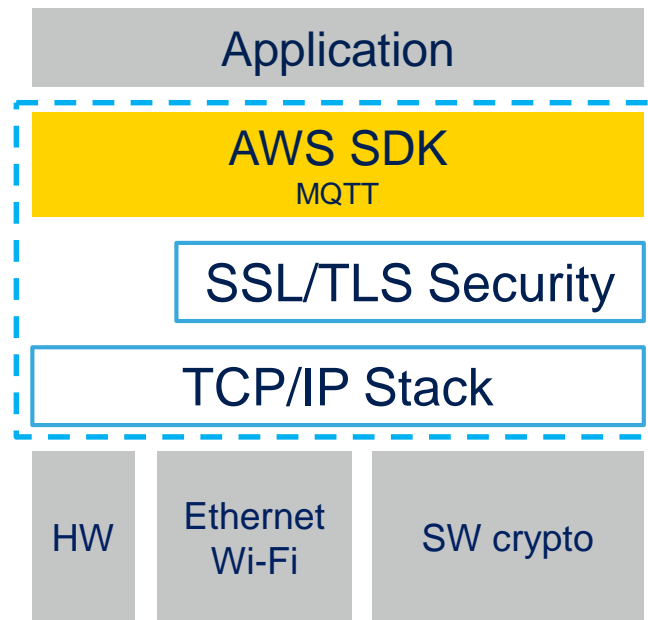


- ST Cloud connectivity SDKs, specific and generic, offered for FREE as STM32Cube Expansion Packages (X-CUBEs)
- Provide all needed Cloud connectivity, device management and security blocks (MQTT, HTTP, SSL/TLS, LWM2M)
- Provide applicative examples
 - Simple data logging and dashboard display
 - Bi-directional interaction with Cloud servers
 - Remote Firmware Upgrade (RFU) through HTTP
- Extensive HW connectivity support
 - Wi-Fi, Ethernet, Cellular (coming soon: 2G/3G, LTE M1 and NBloT)

STM32Cube Expansion Packages

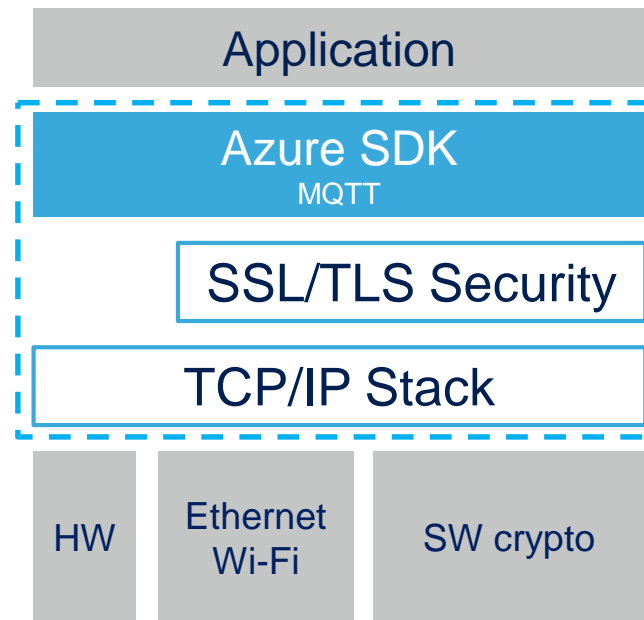
Connection to 1st tier Cloud providers made as easy as 1, 2, 3 within the STM32Cube environment

Thing 



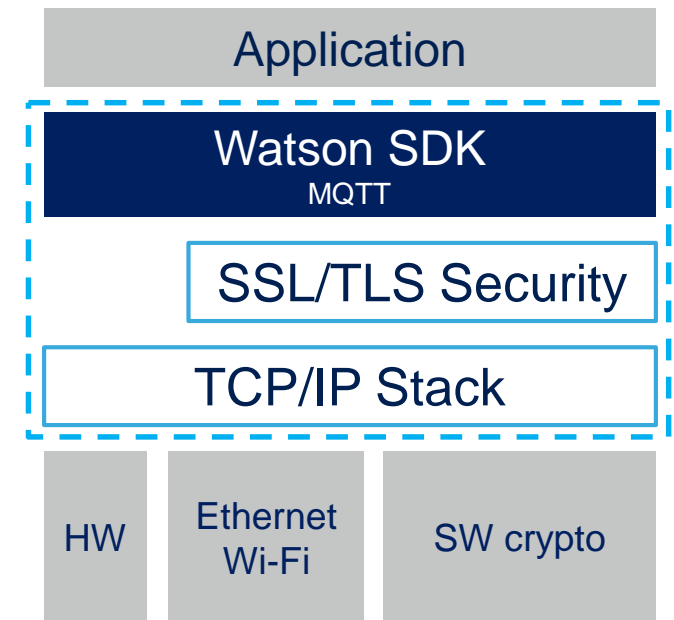
X-CUBE-AWS

Thing 



X-CUBE-AZURE

Thing 



X-CUBE-WATSON

Available for FREE and in source format under business friendly license terms on st.com

- **X-CUBE-AWS**

- Order code: X-CUBE-AWS / www.st.com/x-cube-aws
- Mixed license distribution model ([SLA0048](#)) including amongst others:
 - Source (business friendly) format for Cloud connectivity, security firmware blocks and STM32Cube drivers
 - Source (ST Ultimate Liberty) for applicative examples
 - Apache 2.0 license for aws-iot-device-sdk-embedded-C

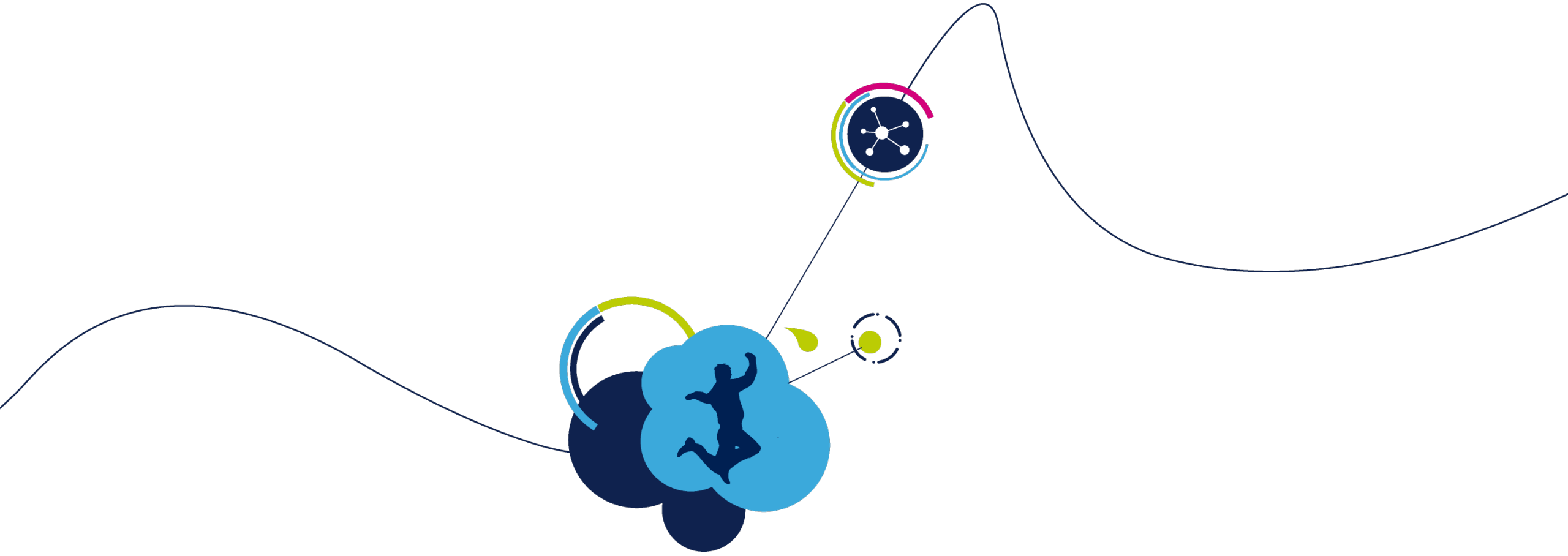
- **X-CUBE-AZURE**

- Order code: X-CUBE-AZURE / www.st.com/x-cube-azure
- Mixed license distribution model ([SLA0048](#)) including amongst others:
 - Source (business friendly) format for Cloud connectivity, security firmware blocks and STM32Cube drivers
 - Source (ST Ultimate Liberty) for applicative examples
 - MIT license for Microsoft® Azure IoT SDK

Available for FREE and in source format under business friendly license terms on st.com

- X-CUBE-WATSON

- Order code: X-CUBE-WATSON / www.st.com/x-cube-watson
- Mixed license distribution model ([SLA0048](#)) including amongst others:
 - Source (business friendly) format for Cloud connectivity, security firmware blocks and STM32Cube drivers
 - Source (ST Ultimate Liberty) for applicative examples
 - Eclipse™ Public License - v 1.0 license for IBM Cloud® Embedded C Client Library



ST SDK for Generic Cloud Connectivity

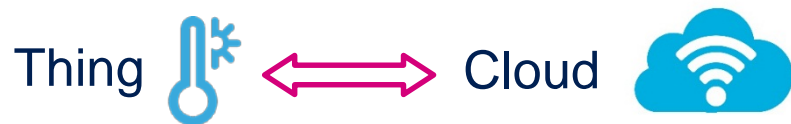
2nd tier Cloud providers support

Generic Cloud connectivity

11

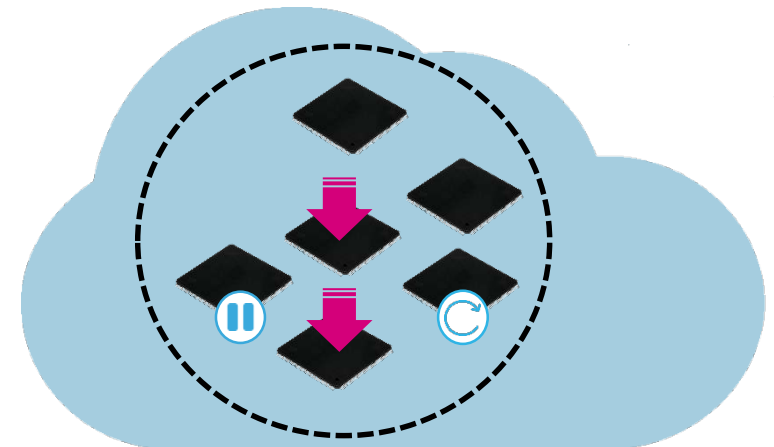
Concept and Introduction

Generic Cloud Connectivity offer: interfacing to any Cloud providers made easier

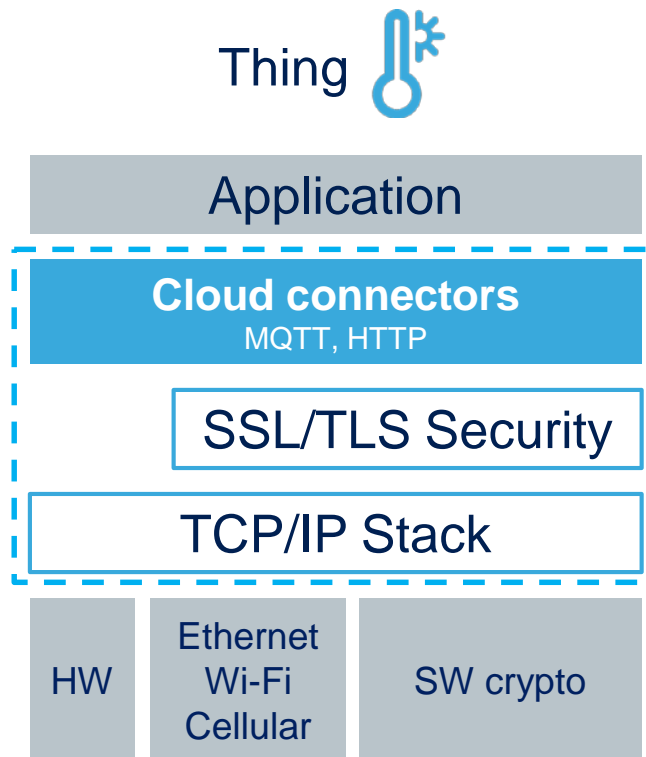


- Generic connectivity clients and examples using main IoT protocols standard implementations
 - MQTT(S): Light communication protocol overhead for more efficient packets over TCP/IP
 - HTTP(S): Classic internet communication protocol

- Basic SW components and examples for device management from a Cloud service
 - LWM2M: Most popular M2M protocol for IoT
 - CoAP: Mandatory for LWM2M



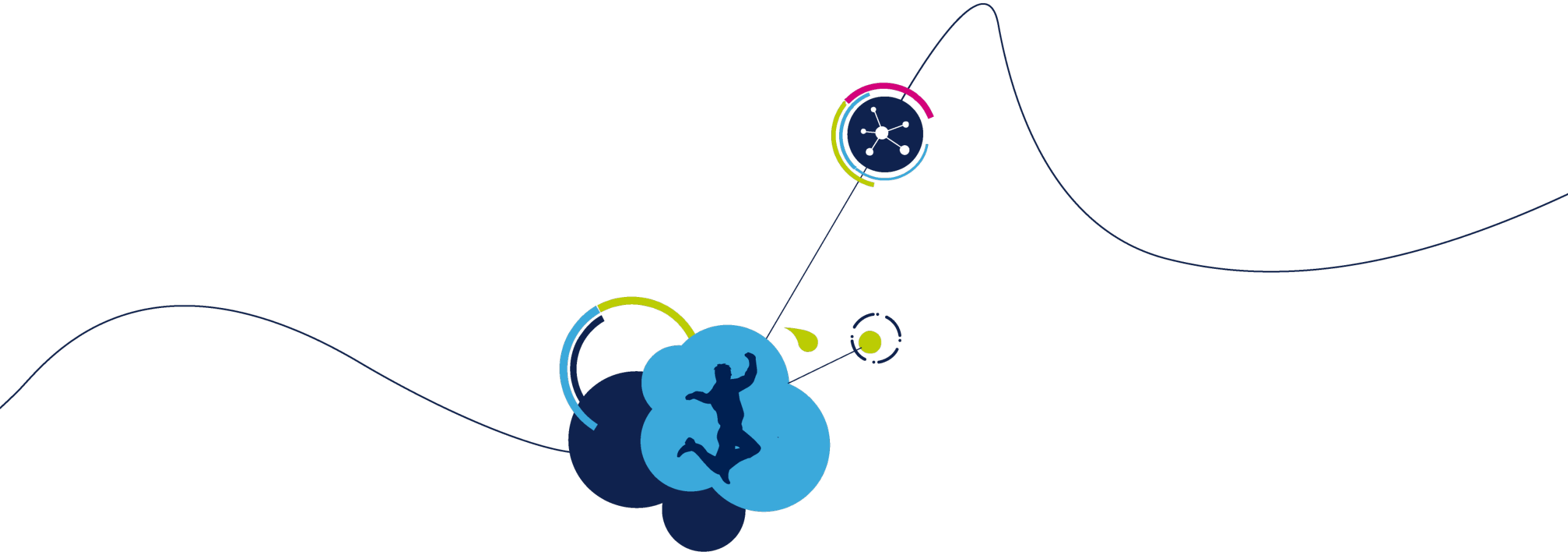
Enabling customers to quickly get started with any Cloud service using standard connectivity protocols



- Offered in open source and free of charge on ST's website
- Provides varied applicative examples
 - Basic HTTP and MQTT server/client connection
 - 2nd tier Cloud providers supported: Exosite, Grovestream, Litmus Automation and Ubidots
 - Ethernet, Wi-Fi and Cellular support (2G/3G and LTE M1/NB IoT)
- LWM2M: Available in Q4/2018

Available for FREE and in source format under business friendly license terms on st.com

- Order code: X-CUBE-CLD-GEN
 - www.st.com/x-cube-cld-gen
- Mixed license distribution model ([SLA0048](#)) including amongst others:
 - Source business friendly (BSD and others) format for Cloud connectivity, security firmware blocks and STM32Cube drivers
 - Source (ST Ultimate Liberty) for applicative examples
 - Eclipse™ Public License - v 1.0 for Paho MQTT embedded C



Supported boards and IDEs

Supported HW boards: Ethernet, Wi-Fi and cellular

STM32F413 Discovery kit



STM32F413H-DISCO
(On-board Inventek Wi-Fi module)

STM32F769 Discovery kit



STM32F769I-DISC1
STM32F769I-DISCO
(On-board Ethernet connector)

STM32L4 Discovery IoT node



B-L475E-IOT01A1
B-L475E-IOT01A2
(On-board Inventek Wi-Fi module)

STM32 Discovery Pack for Cellular to Cloud

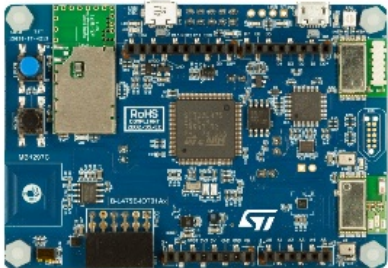


P-L496G-CELL01
P-L496G-CELL02
(Quectel BG96 and UG96 through STMod+ connector)

Several ST boards allowing out-of-the-box development with the SDKs

Example Projects and IDEs

Example projects preconfigured for AC6 System Workbench, Arm® Keil®, IAR™, and ST boards



Releasing your creativity

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 community.st.com



www.st.com/x-cube-cloud