Connecting an embedded system to the cloud can be a daunting task. Not only do you need to have the right hardware solutions to enable your end product, you also need to define an efficient business model, navigate through the many options of cloud companies and then select the best one for your application and business. There are really two direct options, with the consulting piece serving as a third choice. The first option is to connect Microchip hardware to an Infrastructure as a Service (IaaS) like Amazon Web Services. The second option is to use an IoT platform provided by Software as a Service (SaaS) companies. To address the IaaS-based option and show both IoT startups and established companies how to connect a 32-bit microcontroller to the AWS IoT, Microchip has developed an Ethernet solution based on a PIC32 MCU. In addition, Microchip has partnered with some leading Internet of Things (IoT) Software-as-a-Service (SaaS) solutions providers to reduce your time to market, simplify your development and help you get your IoT design quickly connected and running on the cloud.

IoT Ethernet Kit Powered by AWS IoT

We are proud to be part of the partner network for the Amazon Web Services (AWS) managed cloud platform. This scalable and global platform enables you to easily and quickly connect devices to the AWS IoT service, where they can interact with cloud applications and other devices securely. The IoT Ethernet Kit (DM990004) comes preloaded with the AWS IoT firmware to get your example application up and running within minutes. It shows you how to connect a 32-bit PIC® microcontroller to an IaaS using our low-power LAN8740A 10/100 Fast Ethernet Physical Layer Transceiver (PHY) driven by a 32-bit PIC32MZ EF microcontroller (MCU) with 2 MB of Flash. An on-board mikroBUS™ connector allows you to add any of the sensors available on MikroElektronika’s vast selection of click boards™. The kit operates with FreeRTOS™ running the MQTT lightweight messaging protocol and TLS security stack from WolfSSL, which provides you with the necessary resources to start designing your IoT project.

IoT Ethernet Monitoring Kit with Medium One and Saritasa

Get a solid starting point for your application with the IoT Ethernet Monitoring Kit (DM990101). Microchip has partnered with Medium One and Saritasa to provide this end-to-end
reference solution that enables you to prototype, test and connect products to the cloud and to efficiently access, analyze and visualize data. The kit includes the IoT Ethernet Monitoring Board with a LAN8740A PHY, a PIC32MZ EF MCU and support for four sensors using MikroElektronika click boards: temperature/humidity, air quality, pressure and motion. Cloud services from Medium One—an IoT cloud data intelligence company—are embedded on the board to allow you to rapidly build your application. A production-ready iOS® mobile app from Saritasa—an IoT system integrator, providing firmware, software and smart mobile app development—also comes with the kit.

**WCM Wi-Fi® Client Module Development Kit Supported by ExositeReady™**

Fast track your IoT initiatives with the **WCM Wi-Fi Client Module Development Kit (DM182023)** and **Exosite**, a leading provider in the IoT platform market. The kit’s development board incorporates an MRF24WG0MA Wi-Fi Module and a PIC32MX microcontroller and is the first hardware platform certified by the **ExositeReady Embedded Software Development Kit (SDK)** to give embedded software developers access to a comprehensive set of open-source tools for use with Exosite’s advanced cloud-based IoT platform. The kit comes preprogrammed from Microchip’s factories with the ExositeReady cloud agent to enhance the out-of-the-box design experience and to enable faster prototyping and evaluation for a variety of applications. The ExositeReady program includes a complete suite of software modules, ports, instructions and examples. This ensures that you can efficiently develop cloud-connected, production-ready embedded devices with less risk and investment. Visit the **Microchip ExositeReady Platforms web page** to find a number of resources to help you get started with your Wi-Fi-based IoT project.

**PIC32 Ethernet Starter Kit and PubNub**

**PubNub** is a global data stream network that simplifies the deployment of IoT projects by enabling the remote control and monitoring of devices. The **PIC32 Ethernet Starter Kit (DM320004)** provides the easiest and lowest-cost method to experience 10/100 Ethernet development using PIC32 microcontrollers. This board allows you to easily add real-time, bidirectional communication to your PIC32 MCU-based project by using the **PubNub PIC32 client library** for the MPLAB® Harmony integrated software framework. Whether you are using a PIC32 MCU in a home automation, industrial IoT or smart city application, PubNub will let you easily scale that application to millions of users and 75+ platforms (mobile, web and IoT) with minimal battery drain and bandwidth consumption. You can implement critical features including remote device control, secure firmware upgrades and plug-and-play device provisioning. PubNub’s advanced features include device status and metadata monitoring, fine-grain access control, message storage and playback, and automatic data catch-up on unreliable networks. Read the **Getting Started with the Microchip PIC32 Microcontroller tutorial** on PubNub’s blog to learn more.

As an IoT powerhouse, Microchip is committed to providing the resources and support you need to get your embedded design quickly, easily and safely connected to the cloud. Visit our **Internet of Things Design Center** to discover how our portfolio of solutions can help you get started.