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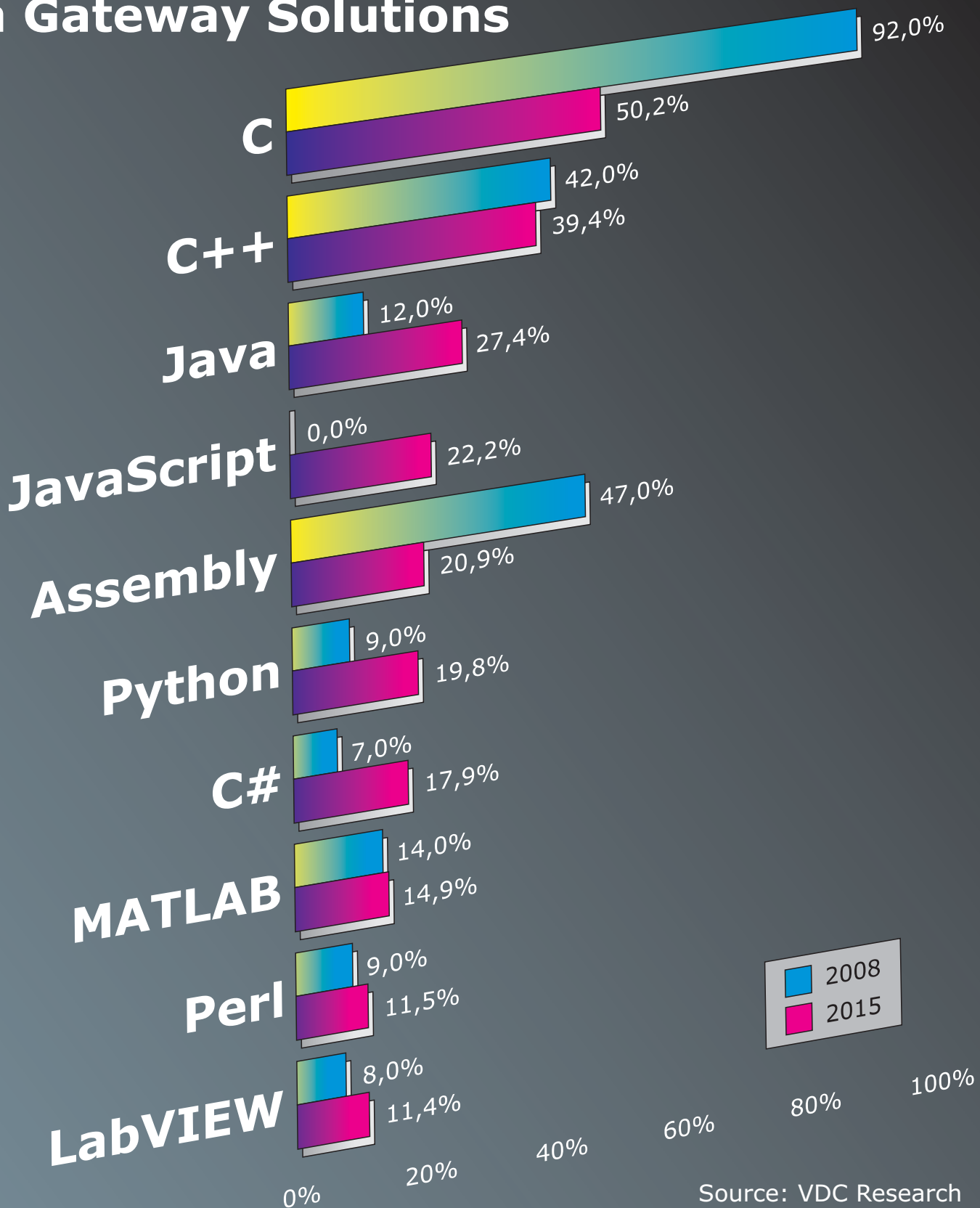
Jan-Feb 2017

The Real Need for Real-Time Java Gateway Solutions



Source: VDC Research

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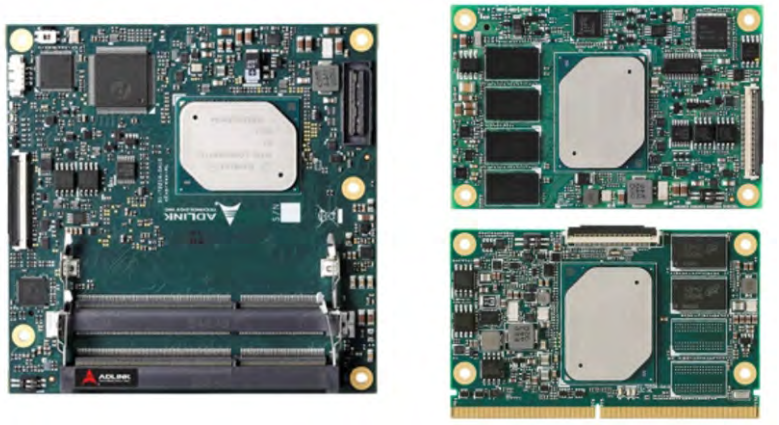
ADLINK Launches New IIoT Building Blocks Based on Latest Intel® Atom™, Intel® Pentium® and Intel® Celeron® CPU's

New boards and modules provide high efficiency video coding (HEVC) and improved 4K display support, as well as virtualization capabilities and a minimum seven-vear lifetime



ADLINK Technology, Inc., a leading global provider of embedded building blocks and application-ready intelligent platforms that enable the Internet of Things (IoT), today announced new computer-on-modules and embedded boards based on the latest Intel® Pentium® N4200 and Intel® Celeron® N3350 processors (codename Apollo Lake) and Intel® Atom™ processor E3900 series (codename Apollo Lake-I). These new offerings take advantage of several improvements over the previous generation of respective Intel® processors, including improved graphics performance with support for Gen 9 LP (18x EUs) and 4K/UHD displays, added virtualization capabilities with full support for Intel® VT-x/VT-d, high-speed DDR3L memory and eMMC 5.0 flash storage.

ADLINK has developed two new COM Express® modules, the Compact Size cExpress-AL and Mini Size nanoX-AL. Both modules offer DDR3L memory up to 1867MHz, with the nanoX-AL supporting a soldered memory capacity range from 2GB to 8GB. In addition to providing three independent display ports that cover DDI/LVDS/optional analog VGA, the cExpress-AL fully utilizes the graphics capabilities enabled through the latest Intel® Atom™ processor and still supports legacy applications. Both modules are cost efficient platforms with rich native I/O support that eliminate the need for an added USB hub, and provide long-life support of at least seven years.

ADLINK's LEC-AL module is based on this year's SMARC 2.0 specification update and offers dual-channel LVDS, 2x MIPI CSI camera interfaces and DDR3L memory up to 1867MHz. The company is also introducing the Q7-AL module based on the Qseven 2.1 specification with fast LPDDR4 memory. All new modules and boards target industrial automation, medical and infotainment applications that require compact, rugged forms factors for harsh, space constrained environments.

Finally, ADLINK's thin Mini-ITX embedded board AmITX-AL-I offers a low profile design, dual DDR3L memory up to 1867MHz, and dual BIOS and Trusted Platform Module (TPM) support. Rich graphics interfaces and I/O includes HDMI, 2x DisplayPort, LVDS/eDP (optional), 7x USB, 6x COM port, dual GbE LAN, PCIe x1, mini-PCIe, 2x SATA 3 and mSATA.

"This latest generation of the Intel® Pentium®, Intel® Celeron® and Intel® Atom™ processors offers several new high-end features that help to lower the overall expense of customer applications requiring high performance computing," said Dirk Finstel, executive vice president of ADLINK's Module Computing Product Segment. "These features include support for up to three independent 4K/UHD displays at 4096x2160@60Hz and added virtualization capabilities, as well as H.265 compression for Internet streaming, which saves bandwidth and lowers communication costs."

All new modules and boards are equipped with ADLINK's Smart Embedded Management Agent (SEMA) to provide access to detailed system activities at the device level, including temperature, voltage, power consumption and other key information, and allow operators to identify inefficiencies and malfunctions in real-time, thus preventing failures and minimizing downtime. ADLINK's SEMA-equipped devices connect seamlessly to our SEMA Cloud solution to enable remote monitoring, autonomous status analysis, custom data collection, and initiation of appropriate actions. All collected data, including sensor measurements and management commands, are accessible any place, at any time via encrypted data connection.

For more information on our new computer-on-module and embedded board offerings based on the latest Intel® Pentium® N4200 and Intel® Celeron® N3350 processors, as well as Intel® Atom™ processor E3900 series. Please visit www.adlinktech.com.

Gartner Identifies the Top 10 Internet of Things Technologies for 2017 and 2018

Ten Technologies That Will Enable Organizations to Unlock the Full Potential of the IoT

Gartner, Inc. has highlighted the top 10 Internet of Things (IoT) technologies that should be on every organization's radar through the next two years.

"The IoT demands an extensive range of new technologies and skills that many organizations have yet to master," said Nick Jones, vice president and distinguished analyst at Gartner. "A recurring theme in the IoT space is the immaturity of technologies and services and of the vendors providing them. Architecting for this immaturity and managing the risk it creates will be a key challenge for organizations exploiting the IoT. In many technology areas, lack of skills will also pose significant challenges."

The technologies and principles of IoT will have a very broad impact on organizations, affecting business strategy, risk management and a wide range of technical areas such as architecture and network design. The top 10 IoT technologies for 2017 and 2018 are:

IoT Security

The IoT introduces a wide range of new security risks and challenges to the IoT devices themselves, their platforms and operating systems, their communications, and even the systems to which they're connected. Security technologies will be required to protect IoT devices and platforms from both information attacks and physical tampering, to encrypt their communications, and to address new challenges such as impersonating "things" or denial-of-sleep attacks that drain batteries. IoT security will be complicated by the fact that many "things" use simple processors and operating systems that may not support sophisticated security approaches.

"Experienced IoT security specialists are scarce, and security solutions are currently fragmented and involve multiple vendors," said Mr. Jones. "New threats will emerge through 2021 as hackers find new ways to attack IoT devices and protocols, so long-lived "things" may need updatable hardware and software to adapt during their life span."

IoT Analytics

IoT business models will exploit the information collected by "things" in many ways — for example, to understand customer behavior, to deliver services, to improve products, and to identify and intercept business moments. However, IoT demands new analytic approaches. New analytic tools and algorithms are needed now, but as data volumes increase through 2021, the needs of the IoT may diverge further from traditional analytics.

IoT Device (Thing) Management

Long-lived nontrivial "things" will require management and monitoring. This includes device monitoring, firmware and software updates, diagnostics, crash analysis and reporting, physical management, and security management. The IoT also brings new problems of scale to the management task. Tools must be capable of managing and monitoring thousands and perhaps even millions of devices.

Low-Power, Short-Range IoT Networks

Selecting a wireless network for an IoT device involves balancing many conflicting requirements, such as range, battery life, bandwidth, density, endpoint cost and operational cost. Low-power, short-range networks will dominate wireless IoT connectivity through 2025, far outnumbering connections using wide-area IoT networks. However, commercial and technical trade-offs mean that many solutions will coexist, with no single dominant winner and clusters emerging around certain technologies, applications and vendor ecosystems.

Low-Power, Wide-Area Networks

Traditional cellular networks don't deliver a good combination of technical features and operational cost for those IoT applications that need wide-area coverage combined with relatively low bandwidth, good battery life, low hardware and operating cost, and high connection density. The long-term goal of a wide-area IoT network is to deliver data rates from hundreds of bits per second (bps) to tens of kilobits per second (kbps) with nationwide coverage, a battery life of up to 10 years, an endpoint hardware cost of around $5, and support for hundreds of thousands of devices connected to a base station or its equivalent. The first low-power wide-area networks (LPWANs) were based on proprietary technologies, but in the long term emerging standards such as Narrowband IoT (NB-IoT) will likely dominate this space.

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Gartner Identifies the Top 10 Internet of Things Technologies for 2017 and 2018

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IoT Processors

The processors and architectures used by IoT devices define many of their capabilities, such as whether they are capable of strong security and encryption, power consumption, whether they are sophisticated enough to support an operating system, updatable firmware, and embedded device management agents. As with all hardware design, there are complex trade-offs between features, hardware cost, software cost, software upgradability and so on. As a result, understanding the implications of processor choices will demand deep technical skills.

IoT Operating Systems

Traditional operating systems (OSs) such as Windows and iOS were not designed for IoT applications. They consume too much power, need fast processors, and in some cases, lack features such as guaranteed real-time response. They also have too large a memory footprint for small devices and may not support the chips that IoT developers use. Consequently, a wide range of IoT-specific operating systems has been developed to suit many different hardware footprints and feature needs.

Event Stream Processing

Some IoT applications will generate extremely high data rates that must be analyzed in real time. Systems creating tens of thousands of events per second are common, and millions of events per second can occur in some telecom and telemetry situations. To address such requirements, distributed stream computing platforms (DSCPs) have emerged. They typically use parallel architectures to process very high-rate data streams to perform tasks such as real-time analytics and pattern identification.

IoT Platforms

IoT platforms bundle many of the infrastructure components of an IoT system into a single product. The services provided by such platforms fall into three main categories: (1) low-level device control and operations such as communications, device monitoring and management, security, and firmware updates; (2) IoT data acquisition, transformation and management; and (3) IoT application development, including event-driven logic, application programming, visualization, analytics and adapters to connect to enterprise systems.

IoT Standards and Ecosystems

Although ecosystems and standards aren't precisely technologies, most eventually materialize as application programming interfaces (APIs). Standards and their associated APIs will be essential because IoT devices will need to interoperate and communicate, and many IoT business models will rely on sharing data between multiple devices and organizations.

Many IoT ecosystems will emerge, and commercial and technical battles between these ecosystems will dominate areas such as the smart home, the smart city and healthcare. Organizations creating products may have to develop variants to support multiple standards or ecosystems and be prepared to update products during their life span as the standards evolve and new standards and related APIs emerge.

More detailed analysis is available for Gartner clients in the report "Top 10 IoT Technologies for 2017 and 2018." This report is part of the Gartner Special Report "The Internet of Things", which looks at the necessary steps to building and rolling out an IoT strategy.

About Gartner

Gartner, Inc. (NYSE: IT) is the world's leading research and advisory company. The company helps business leaders across all major functions in every industry and enterprise size with the objective insights they need to make the right decisions. Gartner's comprehensive suite of services delivers strategic advice and proven best practices to help clients succeed in their mission-critical priorities. Gartner is headquartered in Stamford, Connecticut, U.S.A., and has more than 13,000 associates serving clients in 11,000 enterprises in 100 countries.

For more information, visit www.gartner.com.

National Instruments New Industrial IoT Lab

NI Debuts Industrial Internet of Things (IoT) Lab to Promote Innovation and Collaboration

NI Industrial IoT Lab is a space where companies can work together on Industrial IoT technologies and solutions

AUSTIN, Texas– January 11, 2017 – NI (Nasdaq: NATI), the provider of solutions that enable engineers and scientists to solve the world's greatest engineering challenges, announced today the opening of the new NI Industrial IoT Lab at its Austin headquarters.

The NI Industrial IoT Lab focuses on intelligent systems that connect operational technology, information technology and the companies working on these systems. Designed with flexibility for the future, the lab's operational focus includes areas such as microgrid control and communication, advanced control for manufacturing, and asset monitoring for heavy equipment.

Additionally, the NI Industrial IoT Lab fosters collaboration between different companies to improve interoperability. In this space, companies with expertise in communications protocols, controller hardware, I/O components, processing elements and software platforms come together to validate end-to-end solutions that can dramatically change the way businesses operate.

Companies sponsoring the NI Industrial IoT Lab include:

- Analog Devices Inc
- Avnu Alliance
- Cisco Systems
- Hewlett Packard Enterprise
- Industrial Internet Consortium
- Intel
- Kalypso
- OPC Foundation
- OSIsoft
- PTC
- Real-Time Innovations,
- SparkCognition
- Semikron
- Viewpoint Systems
- Xilinx

"We are excited to strengthen partnerships with other world-class technology companies. A working showcase for new technologies can help all companies involved drive breakthrough innovations for utility grids, manufacturing, asset health monitoring and several other industries," said Jamie Smith, business and technology director at NI.

The lab is a working showcase for Industrial IoT technologies, solutions and systems architectures. Through demonstrators, such as the on-site Industrial Internet Consortium (IIC) testbeds, participating companies can promote innovative solutions and drive discussions with the domain experts that see the real-world challenges.

To learn more about the new NI Industrial IoT Lab, please visit www.ni.com/iiot-lab.

At The Edge of the Industrial Internet of Things

The Gateway is here, are you?

The race to build smart and connected things has begun! And the IoT Gateway is the center of it all, ensuring seamless data flow from sensors and devices to the cloud.

Recent market data shows that Gateways are a growing element of IoT that you should consider when designing embedded systems that connect to the cloud.

VDC Research Inc. conducted a study on the market state of IoT Gateways and suggests new tools that should be in your DevOps strategy.

Gear up for the race.

If you require a deterministic response, consider PTC Perc, a real-time development tool chain and virtual machine for the execution of your applications.

Equip your development team with a proven real-time Java solution and enable edge device aggregation and intelligence. Read the VDC Report to get up to speed in the IoT race!

FACT: 60% of engineers state that their current project requires some real-time capabilities

_ VDC Research

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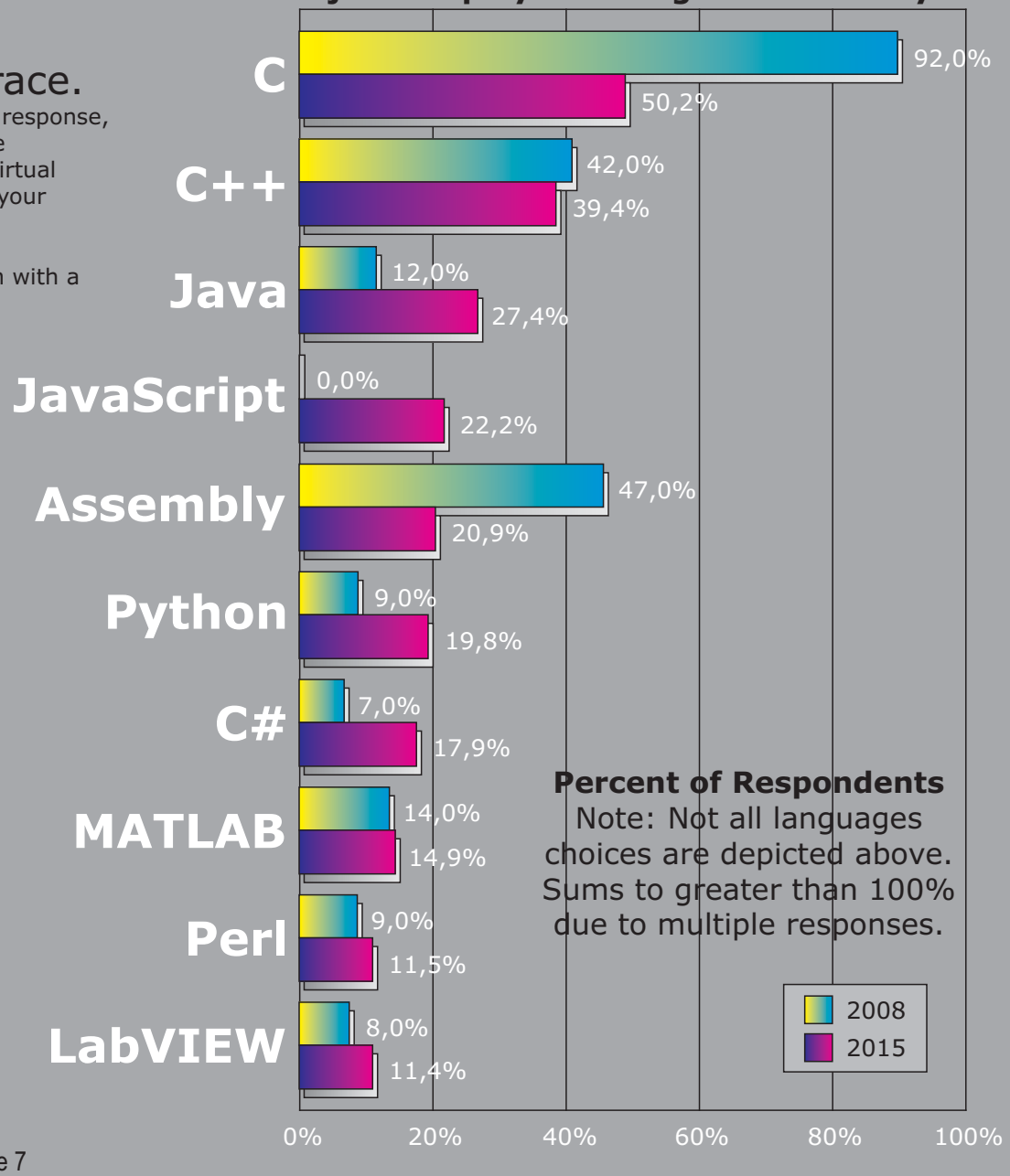
Languages Used to Develop Software on the Current IoT Projects Deployed through IoT Gateways



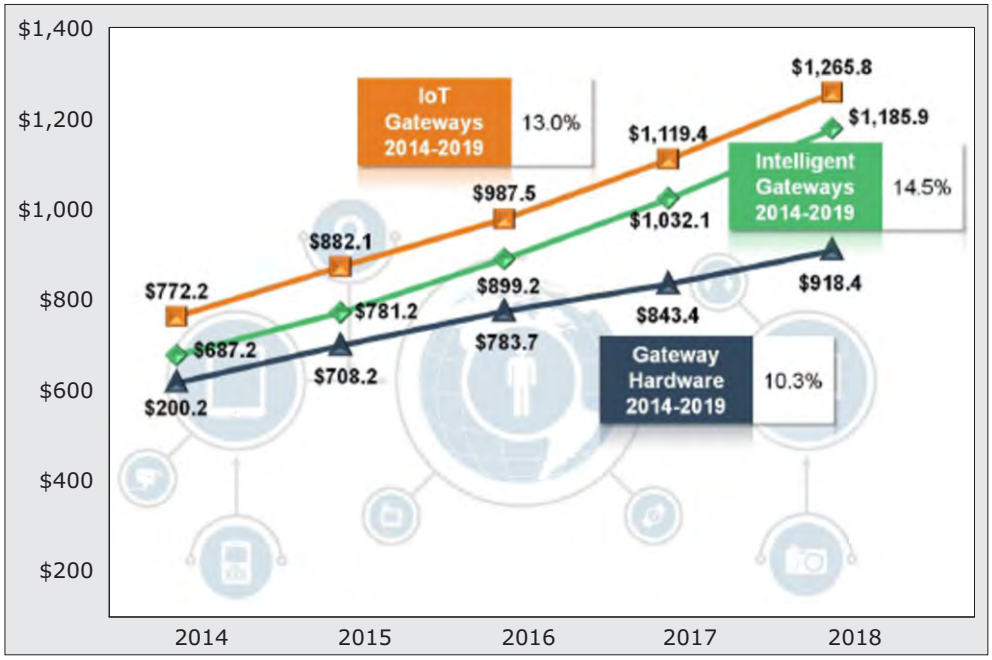
Percent of Respondents
Note: Not all languages choices are depicted above. Sums to greater than 100% due to multiple responses.

The Real Need for Real-Time Java Gateway Solutions White Paper

The Internet of Things (IoT) is forever transforming the embedded landscape. Gateways are one of the fastest growing and developing device categories in the embedded market and has evolved to address the growing computational and intelligence requirement of the IoT.

"Organizations are recognizing their utility for data filtering, analysis and distributed monitoring and control…. Java, for example, continues making inroads for IoT and embedded development."
– Chris Rommel, VDC Research

VDC Research recently published a whitepaper titled, "The Real Need for Real-Time Java Gateway Solutions" highlighting how IoT has accelerated the evolution of traditional embedded device classes.



According to VDC Research, the need for gateway solutions in IoT are:

- Increasingly intelligent edge devices
- The rapidly growing amount of data being created by IoT devices
- Standardization of fragmented and evolving wire/wireless Technology
- And the growing experience developing with Java in embedded engineering organizations

FULL REPORT - Fill out the form to view the full report now Click Here
CONTACT PTC for more information on PTC's real-time Virtual Machine for IoT Java applications.

Most Attractive Application Services Deployed through IoT Gateways

Percent of Respondents
Sums to greater than 100% due to multiple responses