IoT triggers a new wave of enterprise integration

wipro

When a business wanted to integrate two disparate systems, it wrote its own code. Now an increasing number of data sources are being brought into the mix, making the maintenance of code a nightmare. Bus architecture was introduced to solve this.

In the early 2000s, a means to connect services, which we know as Service Oriented Architecture (SOA), became popular. Over the last 15 years, Enterprise Service Bus (ESB) has been widely adopted as middleware to solve complex SOA challenges. Today, organizations focus on becoming digital integration has gone beyond being complex. With Internet of Things (IoT), they now border on the surreal.

An Internet of Things (IoT) study by Gartner says 6.4 billion connected things will be in use in 2016, up 30 percent from 2015[1]. This is an inordinately large number. Many organizations have already begun to realize that device and data integration techniques developed two decades ago will crumble under the pressure of such numbers. The problem becomes even more acute when you consider the growing need for real-time analysis of data.

As the number of connected devices grows, organizations will have to re-visit their integration strategy. This won't remain a technical discussion. Integration strategy will directly impact customer experience and business insight.

Businesses would do well to start scripting their strategy in two areas. The first is the outside (external), which produces high-volume data from sensors and systems. The aim should be to hook up to these systems over which the business may not necessarily have control.

The second is inside the business (internal), where the data is ingested and archived in system of records before being mixed with data from ERP, SCM, MES and CRM to be quickly pushed to analytical engines that support customer-facing systems of experience. These, in turn, create insights, decisions (see Figure 1) and contextual and personalized engagement for customers in industries as wide ranging as retail and banking, travel and education; deliver real-time life-saving interventions for users of mobile medical devices; generate reports, insights and send alerts for business decision-making; manage energy consumption on plant floors; complete real-time reconciliation of transactions; detect and prevent intrusions into physical and non-physical systems, etc.

Enormous amount of data generated by connected devices

Data flows into the analytical engine

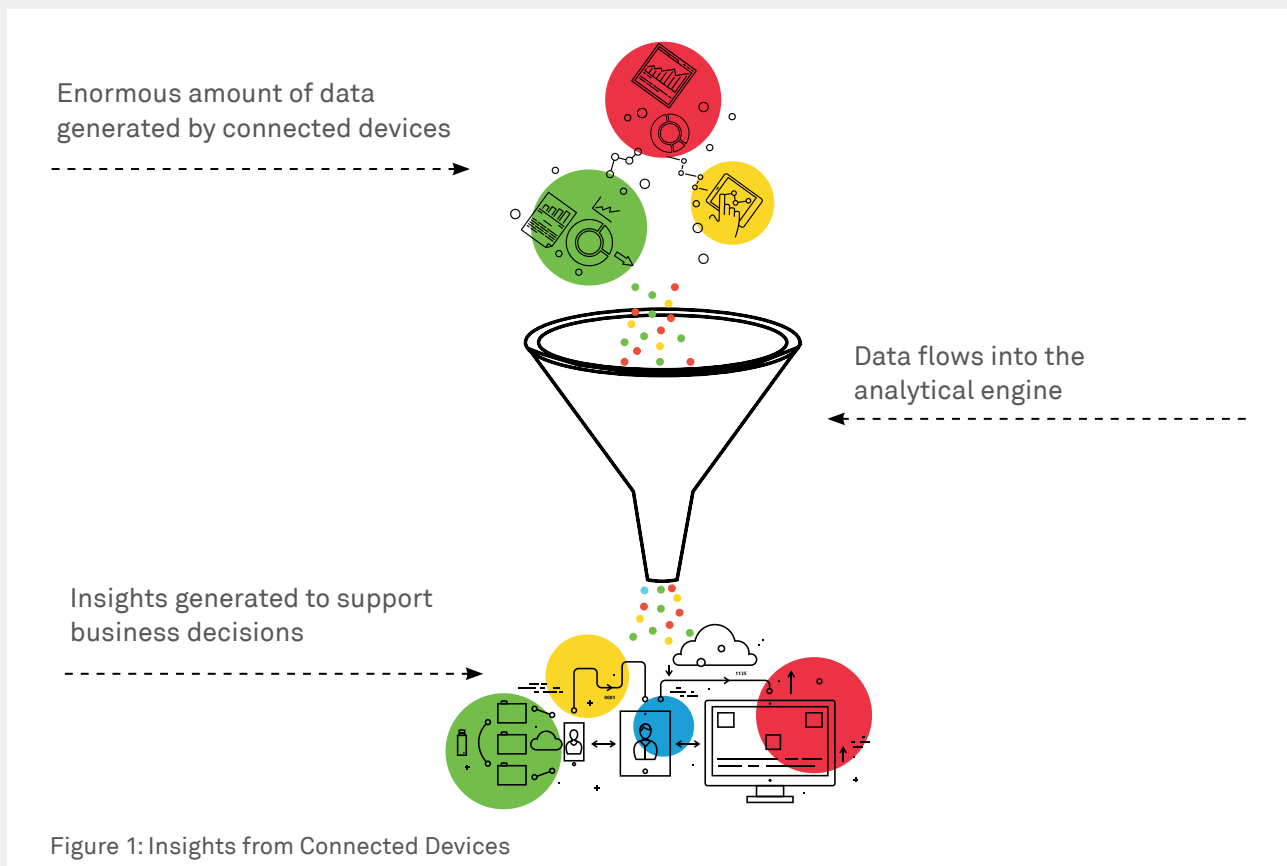Insights generated to support business decisions

Figure 1: Insights from Connected Devices

1. Gartner Press Release "Gartner Says 6.4 Billion Connected "Things" Will Be in Use in 2016, Up 30 Percent From 2015" November 10. 2015
   http://www.gartner.com/newsroom/id/3165317

Facilitators for the integration

To spell this out in simple terms, two distinct ecosystems have emerged: the external and the internal. The challenge is to effectively integrate the system of external and internal things. There is, thus, a need for innovation at the edge of both ecosystems to fuse them seamlessly into a whole. Several components must be understood to achieve this.

Cloud services solve the problem of large data storage and analysis. The advantage of Cloud technology is that it allows organizations to leverage Infrastructure as-a-Service (IaaS), Platform as-a-Service (PaaS) and Software as-a-Service (SaaS). These services permit dynamic addition of new hardware and software resources, and, also enable high performance without any impact to the existing processes.

Traditional integration mechanisms like adapters and legacy protocols are giving way to next gen options like Representational State Transfer (REST), Message Queue Telemetry Transport (MQTT), TCP and Zigbee. As new devices join the IoT, new protocols will evolve and integration will have to be agile and adaptive. Application program interfaces (APIs) here, become enablers of seamless integration.

As organizations acquire and share data, they open a large number of ports to connect to every possible device and operating system.

A number of checks and balances need to be integrated at the edges where external and internal systems become vulnerable. This would be relatively simple to achieve were it not for the fact that as security measures are heightened the trade-off is in terms of speed and agility. Organizations cannot afford to impede velocity of business. Therefore, innovative and light weight security protocols will be required to balance security with agility. IoT will require both – as any one of the two on its own will be insufficient.

Investing in integration

The reality is that there are a vast variety of networks, operating systems, protocols and emerging technologies in use. Standardization across these is impossible to achieve. Smart organizations know this and won't wait to achieve complete standardization. Instead, they will create integration techniques between systems of differing standards. The integration will ensure profitable use of data.

In the coming months, the IoT strategy of organizations will focus as much on the integration aspect as on storing and managing data, on models and algorithms to analyse it and systems to deploy the insights. As the IoT grows in scale, integration will move up on the organization agenda.

About the author

Smita Seth
Business Development Advisor
Wipro Limited

Smita Seth has over 16 years of experience in architecture and technology consulting. She has been responsible for digital integration, application rationalization strategy for multiple customers across the industry and geographies.

For any queries or feedback, write to **ask.ebi@wipro.com**

● **Wipro Limited**
Doddakannelli, Sarjapur
Road, Bangalore-560 035,
India

Tel: +91 (80) 2844 0011
Fax: +91 (80) 2844 0256
wipro.com

Wipro Limited (NYSE: WIT,
BSE: 507685, NSE: WIPRO)
is a leading global
information technology,
consulting and business
process services company.
We harness the power of
cognitive computing,
hyper-automation, robotics,
cloud, analytics and
emerging technologies
to help our clients
adapt to the digital
world and make them
successful. A company
recognized globally
for its comprehensive
portfolio of services,
strong commitment to
sustainability and good
corporate citizenship,
we have over 160,000
dedicated employees
serving clients across six
continents. Together, we
discover ideas and connect
the dots to build a better
and a bold new future.

For more information,
please write to us at
info@wipro.com