Data management: the centre of IoT projects

By Morne Bekker

27 Jul 2017

The internet of things (IoT) offers many more opportunities than merely improving efficiency and reducing costs. With increasing automation and networking, for example, the industry is able to produce even small quantities at low cost and manufacture products according to individual customer requirements.

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IoT also offers the opportunity to develop new business models: there is a shift away from pure product to service. For example, a machine manufacturer could offer its customers technology-as-a-service by not selling their equipment, but rather leasing it based on time and wear. However, until now, South African companies have made little use of the opportunity to develop new business models using IoT.

The consulting firm IDC projects that the number of networked things worldwide will increase from the current 14.9 billion to 30.3 billion by 2020.

According to the IDC study, most organisations are in phase one and two of a typical four-stage process for achieving their IoT projects. Phase one involves the networking of objects, assets or products and phase two monitors the corresponding objects and processes. In phase three, users optimise the processes and procedures based on the information, while phase four is about creating new products and services for customers. But that is a long way off.

Data: a competitive factor

With the number of networked devices, the amount of data companies are gaining is also growing. Evaluating and making the right decisions based on the findings is the essence of every IoT project. In short, data has become a competitive factor. The better a company is able to use it, the more likely it is to stand out from competitors, create exceptional customer experiences or design tailor-made products. Even more so, the right data management strategy allows production processes to be optimised more precisely, errors to be avoided, and costs to be saved. Thus, data management plays a central role.

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A good data management system enables IT to provide the right data at the right time at the right speed, no matter which sources they are from or where they are located. It covers the entire data life cycle, from data collection, storage, classification and prioritisation to archiving or deletion.

Data management also enables data migration as well as aspects of data sovereignty, integrity, and security.

Develop the right data management strategy

Data management is not solely the responsibility of the IT department. Rather, it is to be viewed as a concept that is applied throughout the company.

While the IT team is familiar with technical questions, it usually does not know which data the specialist departments need and which goals they are pursuing. This is why it is important to initially bring all participants to the table and to deliver a comprehensive view of the topic. Ideally, companies appoint a central data officer, a chief digitalisation officer or a chief data officer (CDO) to help the company profit optimally from the data.

Preferred IT infrastructure

The preferred IT infrastructure in most companies today is the hybrid cloud, a combination of on-premises solutions and a public cloud. Data can thus be stored or processed at very different locations. Therefore, it is important that data management is applied uniformly to the various systems and technologies.

Regardless of where data is cloned, backed up, or restored, the same processes and tools should be used. Otherwise, increased management effort is required, which nullifies the efficiency of the infrastructure. In addition, data from different environments must be easy to combine. This requires uniform data transmission. Companies will also be able to transfer data from one cloud to another. This can be useful, for example, for reasons of cost, such as when a provider raises its prices. A uniform data format facilitates the transfer of data into the cloud so that it does not need to be converted beforehand.

The data management strategy must deal with data at the point of origin (at the edge) as well as with the data on the central data platform (at the core).

An enormous amount of data is generated at the edge, that is, at the device and machine sensors, where the system partially already analyses, filters, and makes initial decisions based upon the data. Depending on the use case, selected

data or all data will be transferred to the platform. The challenge there is to make the different data types available for applications on premises or in the cloud.

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NetApp envisions a data fabric that provides seamless enterprise data management completely in the hybrid cloud. Enterprise data can be managed independent of the infrastructure in which they are located, both in the data center and in the cloud. Without such a coherent strategy, the IT department is faced with the challenge of reconciling different procedures for the management of isolated and non-compatible data silos.

by using a data fabric, the IT department can also exploit the potential of innovative services that are specifically designed for cloud architectures. At the same time, it retains control over the data.

A data fabric must be capable of working with industry-leading cloud technologies to provide IT teams with the freedom to choose among service providers and respond to business needs more quickly. A fully integrated solution must also be able to move data across multiple cloud platforms, regardless of vendor or the underlying infrastructure.

Storage is the pillar of IoT projects

In addition to good data management, the right storage is an important building block for a successful IoT project. It is practically the home of the data: it is where data are combined and made available for analysis.

The speed with which the system analyses the data matters in two respects. On the one hand, the storage should be easy to integrate and manage, which in turn allows companies to launch their IoT project faster. On the other hand—and this is a long-term aspect—it must allow fast access to the data.

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