i3 Overview

In today's day and age, everything is increasing 'data' driven, however, data networks only provide end-to-end connectivity support and leave the applications to convert the delivered data into information. This means that each application has to individually deal with managing the data connections and extract the information they require before they can begin to provide value to the application users. In an environment where there are many application, each of the applications are executing these redundant processes in parallel which leads to significant inefficiencies and potential for quality/security problems. I3 provides an information network layer that equalizes the data to information translation which improves infrastructure manageability, reduces costs, and improves system reliability.

Much progress has been made to make it easier to generate, store, process, and visualize information. For example, advances in Artificial intelligence (AI) make it easier to analyze information and use that information to identify trends or to recommend action. A new generation of GUI tools, including AR and VR-based technologies, makes it easier for humans to visualize and interact with available information. Databases, data lakes, and cloud systems have made it easier to manage large-scale information storage and processing systems. However, the processes to convert data into information are usually treated as an afterthought even though they are a central requirement of all these other systems. An information network becomes even more crucial for dynamic information exchanges; while static data can be compiled into data files that can be transmuted by subject-matter experts offline before files are exchanged between parties, this cannot be done in a dynamic world where information is constantly being updated in real time.

I3 has a different perspective, the i3 approach helps solve real-world issues facing current operators of complex network infrastructures, problems that will eventually impact every information-driven enterprise. The i3 team understands data is constantly being generated, transmitted across a network, and consumed in real-time. Effective and efficient operations require that infrastructures look

beyond data connectivity issues and deliver a higher level of intelligence to the applications they serve. However, there are some significant complications that must be overcome to achieve this objective. Information networks have to look beyond the physical networks and transfer information between organizational units when organizational structures reflect federated enterprise structures. Information networks have to respect organizational structures where each organizational element may have different policies and procedures. This means that information access and presentation must be configurable and that intra-organizational trust becomes an enabling element. Development of this kind of trust requires that individual organizations be given the ability to actively manage the data that flows through their organization.

This is what i3 does. i3, creates an information infrastructure that allows operating units to use the information available to them more effectively and efficiently without giving up control of their information. In doing so, it allows the organization to become more collaborative through a managed information exchange. This information exchange serves to reduce project development times, reduce data-driven organizational friction, lower project costs, and accelerate time-to-market – all while reducing power consumption and maintenance costs.

To accomplish these goals, i3 Systems has created an open information architecture based on the realization of a series of *flex points*. A flex point is a position in the data network where information can be transformed, routed, and rerouted based on a dynamic information network that is constantly evolving. This information network sits a top of a traditional network infrastructure that manages the endpoint connections between intelligence centers. These flex points provide adaptability positions where data can be embellished, condensed, or transformed to meet an organization's changing needs.

In its simplest form, the i3 data architecture has a central core that manages a permission-based information exchange. The core may be supported by a group of edge processors that provide distributed flex points that support one or more information generators or information consumers.
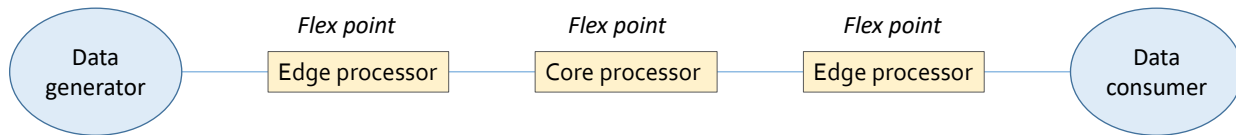
Each flex point consists of a set of data processing building blocks that provide the functionality to support data reception, information transformation, information embellishment, information assignment, and inforation transmission. The functionality of these layers is determined by a set of rules. The rules can be changed over time as the needs of the organization changes and the functional building blocks can be modified over time through the introduction of new building blocks or software defined blades.
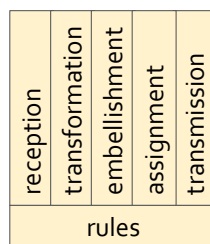
Such a simplified view of the i3 information architecture makes it easy to understand the functional components of an i3 network, but architectural options allow much more complex information systems to be constructed. For example, core processors can be interconnected together to create a complex collaborative infrastructure that transcends organizational structures thereby facilitating the exchange of information between independent organizations. In addition edge processors can be tiered to create flex-point hierarchies that allow organizations to balance processing power with data transmission capacity for optimal performance.

The complexity of managing an organization's infrastructure life cycle is often underappreciated. The initial deployment of an information infrastructure can a complex undertaking but often the processes required to continue the support of a legacy data network coupled with support of a collection of applications with overlapping functions far outweigh the migration to an information-based

infrastructure. The existence of an i3 system within a larger infrastructure provides a natural vehicle to compartmentalize the operational actions that need to be carefully managed and controlled in support for the organization's growing demand for information.