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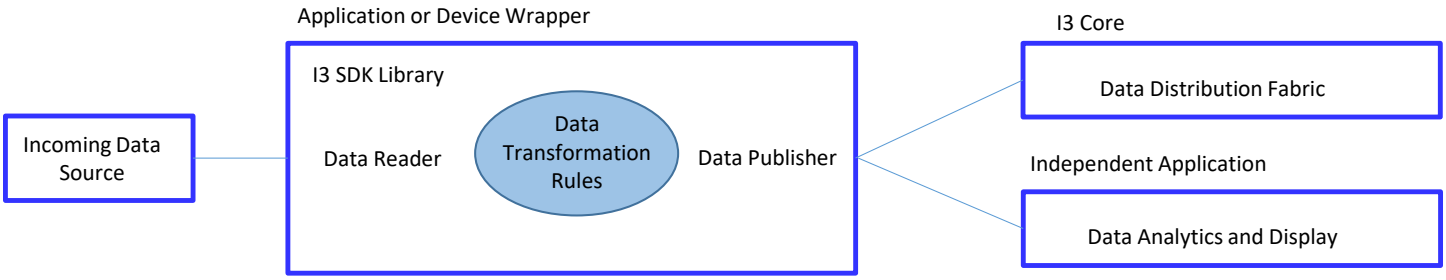
i3 Software Tool Kit (SDK)

Data Flexibility Adapters and Transformational Tools

In large data infrastructures there are many sources of data and many applications in need of data. Unfortunately, every one of these sources and destinations appear to produce and demand to receive data in a different format and structure. It takes a lot of effort to map each source of data to a structure that the destination is willing to accept. This can lead to an operational nightmare trying to manage an ever growing collage of conflicting needs and requirements. The i3 SDK has been designed to simplify this entire process as it reduces complex transformational processes into a sequenced series of change agents that can be applied to data streams flowing into or out of the data infrastructure.



The i3 system uses data wrappers to ingest incoming data and application wrappers to deliver outgoing data. Data wrappers map incoming messages to the organization's targeted system-wide data model and the application wrappers map the system-wide data model to messages intended for a specific application. These data wrappers can be simple (less than 10 lines of configuration code) or they can be quite complex depending on the nature of the incoming and outgoing code. The i3 SDK simplifies the process of supporting complex messaging needs associated with complicated devices and applications.

Why i3 SDK?

Rapid Interface Development	The i3 SDK provides pre-built components and tools, allowing developers to avoid writing code from scratch for common tasks. This significantly reduces development time and effort.
Enhanced Functionality	The i3 SDK offer access to a wide range of interface transformation functions, such as parameter renaming, reordering, structural translations, object merging, object decomposition, and automated polling.
Improved Integration	The i3 SDK facilitate easier integration with the i3 core data matrix and with external applications. This leads to a smoother deployment program and simplifies system maintenance once deployed to the field.
Reduced Errors	By providing pre-tested and reliable code, the i3 SDK minimize the risk of errors and bugs in device and application wrappers leading to a stable and robust deployment process.
Low Cost Interface Management	The cost of any project is determined by the amount of time and effort put into it. With the i3 SDK, the complexity and timeline associated with creating a new interface can be significantly reduced thereby reducing schedule and cost uncertainty.

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Transformative Data APIs Made Easy

Unfortunately, there is no universally accepted IOT or application interface API. Vendors create interfaces that highlight the capabilities of their specific products and this makes it very hard to create a multi-vendor data infrastructure that supports simple data transfers across an interconnecting data infrastrucuture.

I3 developed its SDK to overcome this issue. The i3 SDK allows customers to convert vendor specific APIs into organization relevant information models on ingress and the convert from the organization specific information model to application specific APIs on egress. This transformation-distribution-transformation systems model allows virtually any data source to be mapped to any data destination in real-time thereby breaking down the application-device silos that hinder the deployment of vendor agnostic data infrastructure sytems.

The i3 SDK provides common modules that allow developers to easily –

Poll individual REST based data sources	Monitor asychronous data streams for new data
Merge data from multiple APIs into a single API	Subdivide messages from a device into multiple messages that are managed independently
Rename fields within a message	Drop sensitive and unnecessary data from messages
Restructure message formats and structure	Add new data elements to incoming messages
Log incomming/outgoing messages	Adjust/Convert field values to a common format

i3 SDK Features

- Logging of data flow activations/deactivations
- Duplication of data streams so one data stream can support many applications
- Facilitation of data search processes so applications can peruse and find information of interest
- Data owner centric permission based access to information of interest
- Support for dynamic access to data streams for Ad Hoc access
- Adaptability to support a variety of different data protocols/formats
- Administrative support of data flows between independent teams
- Log files to support data-use audit processes