＋ Add Values
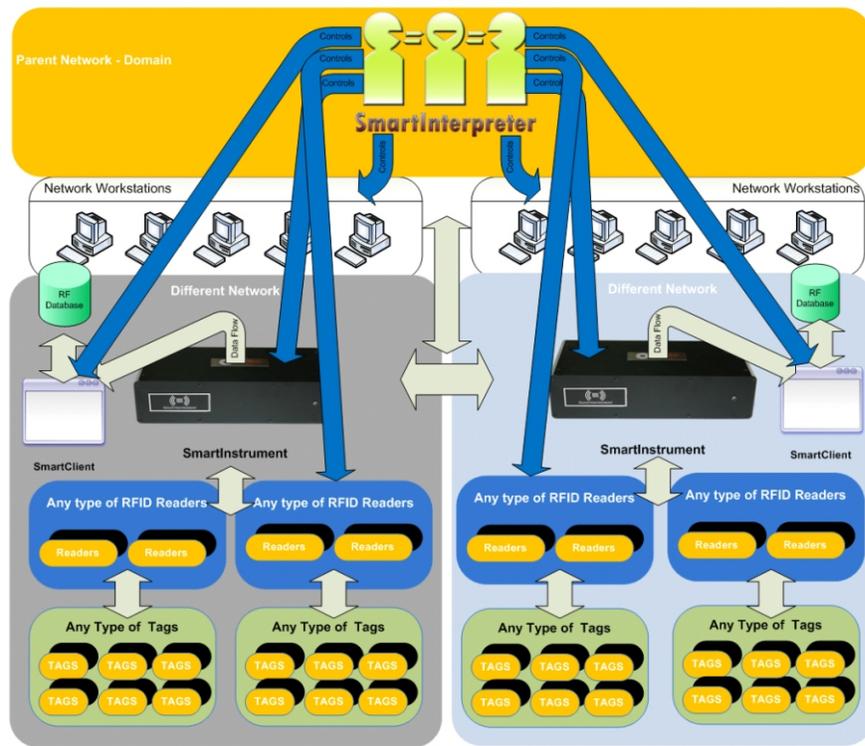
— Reduce Overhead

÷ Re-Engineer the Business Process

✖ Multiply Returns On Investment

? Ask us how

SmartInterpreter - Network Architecture

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SmartInterpreter

Growing demands for complete end-to-end visibility has made the Radio frequency identification (RFID) technology to grow rapidly in recent years. RFID provides identification for each product at item and pallet level throughout the supply chain. This ability of RFID provides the organizations to have more control over the supply chain and over their order to cash cycle.

Attributes of the technology:

Tag or Transponder:
An RFID tag is a tiny radio device that is also referred to as a transponder, smart tag, and smart label or radio barcode. The tag comprises of a simple silicon microchip (typically less than half a millimeter in size) mounted on a substrate. The entire device is encapsulated in various materials (such as plastic) depending upon its intended usage. The finished tag is then attached to an object, typically an item, box or pallet and read remotely to ascertain its identity, position or state. An active tag requires a battery for operation.

Reader or Interrogator:
The reader, sometimes called an interrogator or scanner, transmits and receives RF data to and from the tag via antennas. A reader may have multiple antennas that are responsible for sending and receiving radio waves of host Computer. The data acquired by the readers is then passed to a host computer, which may run custom RFID software or middleware to filter the data and route it to the correct application, to be processed into useful information.

Reltronics Technologies integrates all the readers available in the market and enables various functionalities of the application such as AMS, RMS, ReALTagCoder, SmartMobile, SmartInterpreter and ReALTrack-Locater. The SmartInstrument™ is a versatile middleware which supports the following readers:

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- Intermec IP4
- Intermec IF5
- Motorola Symbol MC9000
- Motorola Symbol MC9090
- Motorola Symbol XR400
- Alien ALR9800
- Psion 7435 Gen 2
- WaveTrend RS-232
- WaveTrend TCP/IP
- ThingMagic M4
- ThingMagic M4e/h
- ThingMagic M5e/h
- Intelleflex Family of readers

The versatility of SmartInstrument™ enables it to be the most efficient, plug and play RFID middleware and allows implementation of better control for a successful operation of any business, large or small.

RFID Middleware or Edge Server:
Reltronics Technologies offers the SmartInstrument™ middleware or edge server which is utilized to inter-connect many readers under one single unit and provides a way to integrate data output within the information network. The middleware and the Edge server works as a mediator between various RFID readers and the Host Applications / ERP Applications / Business Applications to supply real-time data.

Information Network Infrastructure:

The acquired data flows from source to destination where it is required and maintained in database and streamlined to several other networks for further processing. Such information is stored as either a knowledge base or information base employing several network related components, software related components and other resources.

1.1. Need For Integration

Although RFID provides a number of benefits, it requires a sensor network as to where it connects networking, and radio frequency or RF hardware components to deliver the real-time information.

1.2. Need for a SmartInterpreter

Growing demands for complete visibility into supply chain in-order to increase the competitiveness leads to deploying complex RFID data management networks. Such networks are very expensive to manage and cumbersome to maintain.

When Reltronics Technologies conducted the market survey to identify the issues related to management of RFID network and related issues, it became clear that there is a strong concern about manageability, scalability and extensibility of mature RFID networks. In addition the ability to share data across diverse physical networks between various trading partners is required. SmartInterpreter is the RFID network management software, a one-point sensor network management software that manages sensor-based network economically, efficiently and effectively. It monitors the SmartInstrument™ and the SmartClient.

Features and Advantages of SmartInterpreter:

Gain full control over heterogeneous sensor network:
If the RFID network includes heterogeneous hardware configurations then SmartInterpreter considers disparate devices from different manufacturers that can, temporarily or permanently, become a part of sensor network.

Efficient health monitoring of the sensor based network:
SmartInterpreter not only monitors the SmartInstrument™ and SmartClient but also verifies the existence of each workstation in the network and assists in remotely managing the RFID readers and sending timely alerts to the administrator.

Centrally Configure, Manage and get time based accurate Reports:
SmartInterpreter allows the ability to centrally configure all sensor based hardware device settings across multiple RFID networks and transcending geographies without having to leave the office. SmartInterpreter also has the ability to aggregate configuration settings into common profiles that are applicable to a multitude of devices concurrently.

Provides a Common Command Set and Remote Diagnostics for RFID readers:
SmartInterpreter provides the common base for all the RFID readers which leads to a common command set for all the available readers within the sensor based network. It also provides remote diagnostic features for RFID readers based in the sensor network. By utilizing the SmartInterpreter, the administrator remotely diagnoses all the supported RFID hardware.

Provides independent management of RFID and sensor-based networks:
SmartInterpreter includes a centralized management of RFID and sensor networks which facilitates organizations to isolate the enterprise applications from RFID networks and enable database manipulation and processing activities be carried out by the SmartInstrument™ and SmartClient independently. SmartInterpreter allows the enterprise application to rely upon database technologies to provide on-time, accurate information support needed by the organization.

Provides Plug-Play type of RFID configuration:
SmartInterpreter provides Plug and Play capabilities for the sensor based network and provides the ability for the administrator to switch to any supported reader dynamically.

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