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What is FDT® Technology?

The FDT Group AISBL is an international non-profit corporation consisting of leading worldwide member companies active in industrial automation and manufacturing. The major purpose of the FDT Group is to provide an open standard for enterprise-wide network and asset integration, innovating the way automation architectures connect and communicate sensor to cloud for the process, hybrid and factory automation markets. FDT Technology benefits both manufacturers and end users, with advancements such as the Industrial Internet of Things (IIoT) and Industry 4.0 delivered out-of-the-box – enabling modernized asset integration and access to performance data for visualizing crucial operational problems. Around the world, end users, manufacturers, universities, and research organizations are working together to develop the technology; provide development tools, support, and training; coordinate field trials and demonstrations; and enable product interoperability.

FDT Technology is comprised of two primary software components—the FDT Device Type Manager (FDT/DTM™) the driver for an intelligent device, and the FDT FRAME Application (FDT/FRAME™), which can be a stand-alone configuration application or embedded in engineering applications such as a DCS, PLC or asset management solution. DTMs developed by instrumentation suppliers provide a graphical interface to support configuration, diagnostics and troubleshooting of critical measurement devices and other assets. The FRAME Application provided by the system supplier, hosts DTMs used for management of all the devices on a wide variety of process and factory networks within a facility. Together, an FDT/FRAME and a collection of DTMs and/or other device drivers create an FDT-enabled application, which can be scaled from a small collection of devices to tens of thousands of devices controlled by a single FRAME throughout the automation communication pyramid.
FDT IIoT Server™ Platform to Transform Manufacturing Excellence

Emerging FDT standard features native OPC UA integration unifying the architecture for process, hybrid and discrete applications

Lee Lane, FDT Group Chairman of the Board of Directors

The new FDT IIoT Server™ (FITS™) standard is out for review and comment by our members. This is a major milestone towards publicly releasing the standard at the end of this year. The ability to deploy a single server, either locally or in the cloud, and access the complete project structure and all devices with a simple web browser is garnering significant interest in the industry. The ability to get access to configuration, health, and diagnostics information from a tablet or smart phone is a compelling business process improvement. Since the architecture also supports APPs, I look forward to an exponential increase in functionality, further improving plant efficiency.

Perhaps one of the most asked about features of FITS is the integration of an OPC UA Server. The FDT Group and the OPC Foundation jointly authored this exciting capability. Unlike patchwork solutions that try to get access to some device information through OPC UA, the FITS architecture allows all devices on all networks to be accessed through the FITS Server. Due to the very scalable FDT architecture, this capability requires no special configuration by the end user. It is simply there and it works. Any OPC UA client that has the correct security profile can browse the entire project structure and access any information available from the FITS Server. That is a real game changer.

While the OPC UA capabilities are easy for an end user to leverage, it is even easier for the vendor community. The device suppliers that have a DTM to support their devices in the FDT standard do not need to do any additional work to support the OPC UA capabilities. The FDT/FRAME or FITS Server simply utilizes existing interfaces within the DTM to support all of the OPC UA data requirements. This is an elegant way of increasing the business value of a DTM without any additional investment by the developer.

The FITS architecture brings exciting new capabilities to the end users in part due to its distributed architecture. While the business value of the FDT standard is taking a leap forward, we are highly sensitized to the need for heightened security to support the multiple deployment options. To this end, we have assembled a team of security experts from our member companies that are reviewing the standard with an eye toward strong security. They will also engage outside technical resources to assist them in ensuring a robust security architecture. While we will always need to ratchet up security as time progresses, I view this as an excellent foundation for a security hardened standard. My thanks to our dedicated security volunteers.

The developers’ tool kits for FITS, also known as Common Compo-
nents, are currently in development. Anyone wishing to author products in support of the FDT FITS standard will welcome these rich tools. Built upon the FDT 2.1 common components, these tools relieve the developer of most of the work of integrating the standard into their product in favor of focusing on creating value added capabilities for the vendors’ products. The common components also speed the product through the certification process since generally more than 70% of the test cases are eliminated due to pre-certification of the common components.

The progress and insightful direction of the FDT Group has been outstanding. Now our FDT Group Board of Directors is looking for a few companies, vendors or end-users, that would like to join as a sponsoring member to set the future direction of the FDT Group and its associated standards. Our organization is entirely membership lead so your participation at the Board level has a direct and measurable effect on the direction and outcome of the organization. I welcome the opportunity to discuss this exciting possibility with any interested company.
Device configuration and commissioning tasks are traditionally time-consuming, tedious, manual, and prone to errors. Yet, they are vital to ensure the reliability and safety of an industrial facility.

It has also been recognized time and time again that the ability to have open access to device intelligence is essential to enhanced reliability, reduced failures, and faster start-up times.

The following article describes how Inter Pipeline Ltd. recently commissioned a new liquids extraction plant with smart HART® devices, and used FDT® technology to access information so as to effectively streamline pre-commissioning, configuration and troubleshooting of field instruments.

Background

Inter Pipeline is a major petroleum transportation, storage and natural gas liquids processing company based in Calgary, Alberta, Canada. It owns and operates facilities throughout western Canada and Europe.

In 2016, Inter Pipeline acquired a Canadian midstream business. The company now operates the Pioneer 1 and Pioneer 2 liquids extraction plants located near Fort McMurray, Alberta; a fractionator near Redwater, Alberta; and a pipeline system that connects these facilities.

The Pioneer 1 extraction plant, which began operations in 2002, processes offgas from oil sands upgraders. The Pioneer 2 plant began production in February 2016 and is committed to boosting domestic NGL production while reducing emissions of carbon dioxide (CO2) and sulphur dioxide (SO2).
Challenges with Field Devices

The “Connected Plant,” with its promises of smart equipment sharing data and allowing manufacturers to make informed business decisions, can only be a reality if instruments are properly set up and connected successfully to the plant’s network.

Commissioning and configuring field devices typically is one of the final, critical tasks before a plant can be formally started up. Accurate and timely completion of these tasks winds up being a critical hurdle prior to actual production.

Configuration and commissioning must be performed for each device – each with many configurable parameters. With countless devices in a typical process plant installation, technicians have mountains of data to enter and verify. For example, a typical guided wave radar level and interface transmitter has more than 500 parameters to configure.

During commissioning and start-up at Inter Pipeline’s Pioneer 2 facility, approximately 700 HART instruments from different suppliers were connected throughout the plant. However, intermittent failures occurred with specialized radar and magnetic level measurement instruments. These devices are part of a crucial safety control system in voted configuration, whereby taking sensor signals and comparing them in the central processing unit (CPU) executing the application logic accomplishes the voting elements.

Inter Pipeline’s Lead I&C Engineer, Japan Shah, stated, “Voting degradation on Pioneer 2’s safety system had the potential to cause unwanted downtime and also lowered confidence in the installed instrumentation. This situation was unacceptable to plant management, and created an urgent need to an effective device troubleshooting and maintenance solution.”
Integration and Data Delivery Agility

In order to optimize device configuration and commissioning, and ensure the continued safety of plant personnel and assets, Inter Pipeline’s project team employed FDT® for smart instrumentation information monitoring. Recognized as an international (IEC 62453), North America (ISA 103), and China (GB/T 29618) standard, this enabling technology creates a common communication method between devices and control or monitoring systems for lifecycle management – to configure, operate, maintain, and diagnose intelligent assets.

FDT remains one of the automation industry’s best-kept embedded software secrets. It isn’t a communication protocol, but rather an integration and data delivery technology powered by an open architecture built independent of protocols and vendors to enable seamless interoperability and integration agility in support of fully connected operations. The data collected by various management systems from field instruments and other assets can be used to schedule preventive maintenance – avoiding costly plant downtime due to breakdowns.

Ongoing advancement of the FDT solution is leveraging major developments like the Industrial Internet of Things (IIoT) and Industrie 4.0 through the FDT IIoT Server™ (FITS™) to help end users realize the true potential of decentralization, interoperability, integration, as well as a unified view of all data and functions across process, factory and hybrid control applications.

FDT technology is comprised of two main software components: the FDT Device Type Manager™ (FDT/DTM™) and the FDT FRAME™ (FDT/FRAME™). The FDT/DTM is a software component for an intelligent device or communication component within a digital network. It is similar to a device driver (like the driver used to set up a new printer), which is created by the instrument supplier who has the most knowledge of the full capability of the device. DTMs can range from a simple graphical user interface for setting device parameters up to a highly sophisticated application that can perform complex calculations for diagnostics and maintenance purposes. They include a rich and user-friendly graphical interface to make device configuration, maintenance, and troubleshooting fast and easy. Their simple and clear interface standardizes the training required to configure an intelligent field device – shortening set-up time and reducing configuration errors.

Conversely, the FDT/FRAME™ provides access to all devices, gateways and communication components with single-point access to...
operational assets. It can be embedded in any control system, configuration tool or engineering application that needs seamless access to the installed base of intelligent devices. This component allows DTMs to extract performance driven data from all connected devices and multiplexers on a control network.

Inter Pipeline used FDT/DTMs to ensure field devices were pre-commissioned and configured properly. Device manufacturers provide FDT/DTM software for their products, and the FDT/FRAME communicates and read those DTMs – regardless of protocol – for each device. This enables complete lifecycle access for configuration, operation and maintenance, no matter the supplier, device type/function, or communication protocol.

Monitoring and troubleshooting of multi-vendor instruments at the Pioneer 2 facility was performed using PACTware™ software. An open source program available to members of the PACTware Consortium, PACTware functions as an FRAME™ or “container” application that instantiates DTM driver objects (including displaying the device user interfaces) and allows connections between them. It is intended for flexible parameter adjustment of field instruments, remote I/O and communication modules in digital bus systems and networks, and supports powerful integration and interoperability capabilities allowing users to operate field devices of different manufacturers and communication protocols with a single standard PC-based application.

PACTware is a simple solution for device configuration, and at the same time, it provides a path from basic applications to complex asset management. The incorporation of .Net technology not only enables greater independence from the hardware platform, but also opens up new opportunities for a more advanced graphical user interface.

Addressing Instrument Failures

Inter Pipeline Instrument Technicians relied on a solution integrating DTMs with PACTware software to investigate, analyze and correct instrument failures, and in doing so eliminate spurious trips, during start-up of the Pioneer 2 facility.

Figure 3: The FDT/DTM includes a rich and user-friendly graphical interface to make device configuration, maintenance and troubleshooting fast and easy.
According to Shah, personnel at the Pioneer 2 facility found that the use of DTMs didn’t require a high level of technology expertise, but rather provided graphical access to smart device measurements and diagnostics for quick problem identification and resolution. “Device DTMs proved to be valuable when configuring and troubleshooting complex instruments like radar and magnetic level gauges,” Shah said. “Technicians were able to see the devices clearly, know their condition in advance, and act with agility throughout their workflows.”

DTMs support a more robust diagnostic capability than Device Descriptions (DDs) and Electronic Device Description Language (EDDL), which provide minimal information on how to address malfunctions and configuration issues with smart instrumentation. The DTMs provide a handy tool for less experienced technicians to solve instrument problems in a short amount of time.

Device suppliers are able to embed intelligence in a DTM in a way that is very difficult to accomplish with DD files, such as a number of graphical constructs that cannot be expressed within DD technology. Moreover, the DTM is device and revision specific so that it has knowledge about the particular version of each device on the control network.

For example, magnetic level gauges installed at the Pioneer 2 plant have a DTM interface that provides a user-friendly troubleshooting menu. The ability to set sensitivity values through the intuitive DTMs helped resolve device performance issues and allowed for remote configuration, trending, and diagnostics.

In another instance, guided wave radar instruments had problems during tank filling. Personnel were able to adjust signal suppression and other parameters via DTMs. They gained visualization of echo curves, trends, and vessel configuration, along with the ability to store, review, save and e-mail data on instrument configuration.

Simon Huang, Lead E&I Tech for Inter Pipeline, believes FDT technology will provide an effective, long-term maintenance and operations solution for the Pioneer 2 facility. He said, “Our site main-
Maintenance teams now use DTMs as a day-to-day tool to tune a wide range of process and safety instruments – ensuring the plant runs without downtime, and, most importantly, stays safe. Personnel can remotely monitor the health of installed assets from a laptop in the control room without having to ensure harsh conditions in the field.”

Rakesh Keezhuveetil, DCS Engineer at the Pioneer 2 site, stated, “The combination of measured values and device diagnostics helps in identifying specific deviations in operation and instrument performance, and has substantially reduced troubleshooting time. This capability also allows the rapid segregation of the team that must act to address issues involving maintenance, operation, or processes. When an adverse situation arises, online information is crucial to mitigate the source of the problem.”

**Conclusion**

Inter Pipeline has continued to advance the innovation of the Pioneer 2 plant by achieving a flexible device configuration and commissioning capability, as well as a higher level of efficiency across its maintenance and troubleshooting work practices. Key to these improvements was the implementation of FDT technology to make certain all installed assets are used to the best of their ability. The facility has significantly reduced device commissioning cycle times and improved the quality of configuration. Operators, engineers and technicians can now be confident in the reliability of their plant’s safety system and instrumentation loops.
All the Data Without the Trouble

Device information access through OPC UA within the FITS™ architecture benefits both control and IT departments in today’s industrial enterprise

Background

In order to compete and win in a global, competitive, fast moving world with increasing demands, all kinds of technology must be harnessed and put to good use. But without an effective approach to enterprise integration, all these technologies remain in silos and won’t be useful to the business.

The following article describes how technology collaboration between two leading open, automation industry standards organizations is changing the paradigm for integrating control systems, applications and devices within a unified architecture – all aimed at optimizing information exchange throughout the industrial enterprise.

As two leading open, industrial automation standards organizations, FDT Group and OPC Foundation are working together to provide greater access to critical information throughout the industrial enterprise. FDT is the established integration standard, globally adopted with hundreds of thousands of FDT/FRAME™-enabled control and asset management systems and tens of millions of FDT/DTM™-enabled field devices, while the OPC Unified Architecture (UA) provides an infrastructure to make enterprise information available to thousands of other applications and platforms.

The FDT standard intersects the variety of networks attached to intelligent instrumentation and the higher-level systems that interact with these devices. It establishes an open, modular and holistic automation architecture that adapts to the changing requirements of suppliers and end-users. FDT incorporates a plant hierarchy based on a physical network topology coupled with a logical topology. The technology supports all the major networks employed in process, hybrid and discrete automation, and is adaptive to future networks as the industry demands. This approach makes it possible for FDT-based systems to transparently tunnel through disparate networks to gain access, and talk with any end device.

OPC UA, on the other hand, is focused on providing complete information modeling that allows industry stakeholders to take advantage
of a service-oriented architecture enabling previously disconnected devices and applications to work together in a seamless manner. For example, OPC UA enables client applications to connect to server applications without understanding the syntax and semantics of the data compiled into the client application. This approach is all about simple discovery of the capabilities of the server, and efficiently leveraging its services and data.

Meeting today’s data challenges

In November 2016, FDT Group and OPC Foundation announced the release of an FDT for OPC UA companion specification/annex for information modeling. This was an important milestone for standard integration of information provided by FDT/DTMs into the OPC UA information model.

Recently, the FDT Group worked with OPC Foundation to enable native integration that’s supported both by OPC UA and FDT 2.x technologies. Instead of writing this integration capability into the FDT specification, the two organizations collaborated on a companion specification describing how to implement an OPC UA Server in an FDT/FRAME as part of the emerging FDT IIoT Server™ (FITS™) architecture. Most of the companion specification is devoted to outlining the data mapping between the two sides.

The FITS solution takes advantage of the FDT for OPC UA companion specification in enabling sensor-to-cloud, enterprise-wide connectivity for industrial control systems. It combines native OPC UA integration, web services and rich control network interoperability to optimize connectivity and information exchange for the next generation of automation. The solution also features robust layered security addressing all components of the server architecture.

Progress on information integration

Standard integration of information provided by FDT/DTMs into the OPC UA information model is essential for device diagnostics, configuration and remote asset management, as well for integration with higher-level business applications. This document defines an OPC UA Information model to represent the FDT architectural models. This allows an FDT/FRAME or FDT IIoT Server to expose project structure and device specific information through standard OPC UA mechanisms. While this mapping is an essential activity to achieve interoperability, it is completely transparent to the end user.

As part of the integrated FDT/OPC UA solution, the built-in OPC UA Server can read and write device information. Any OPC UA Client can access the FDT/OPC UA Server and obtain data as long as it has the right credentials. There are a multitude of possible clients within this architecture.

From the FDT standpoint, the aforementioned approach exposes its project tree to the OPC UA Client so that it can see what devices are accessible. As users click on each device, they can view and access its
Continued
All the Data Without the Trouble

OPC UA provides a uniform information exchange methodology between applications, whereas FDT provides network/device configuration and access to devices. The combined FDT/OPC UA approach enables unification of system engineering, configuration and diagnosis in Industrie 4.0.

The capabilities for OPC UA integration were introduced with the FDT 2.0 specification. Additional enhancements were made with the subsequent 2.1 version and will be strengthened in the 2.5 standard (also known as FITS), which is set to deploy in the 4th quarter of 2018.

Optimizing network communication

We all know that process control and discrete automation systems, field devices and other electronic instruments are networked so they can exchange information. But how does that information get where it’s supposed to go?

Within a traditional client-server (i.e., request-response) communication model, a client computer or software requests data or services, and a server computer or software responds to the request by providing the data or service.

For example, when sending a spreadsheet to the printer, the spreadsheet program is the client. Its request for printer services goes to the print server, which responds to the request and allocates resources for printers on the network. The print server handles all the client requests for printing, making sure the spreadsheet and other pending print jobs are all completed in an orderly way.

A different way for systems and devices to communicate on a network is called publish-subscribe messaging (i.e., a form of asynchronous service-to-service communication). In this model, any message published to the network on a topic is immediately received by all

Figure 1: Screenshot of FDT OPC UA Client showing the project tree exposing what devices are accessible.
of the subscribers to the topic. Clients that publish the data send it only when the data changes. Clients that subscribe to the data automatically receive it from the server, but again, only when it changes.

The publish-subscribe extension enables public subscriptions for larger numbers of devices. The client-server model has drawbacks in this case, as a large number of connections would have to be established, each client would need to provide memory for storing the connection information, and high processor load would be generated in the server for encoding the individual messages per established connection.

OPC Foundation recently announced the release of a publish-subscribe (aka, “PubSub”) specification to make the OPC UA standard compatible with emerging IIoT applications. Its mission is to provide a mechanism for publishing server data to many clients. With OPC UA PubSub, applications do not directly exchange requests and responses. Instead, publishers send messages to a message-oriented middleware, without knowledge of what, if any, subscribers there may be. Similarly, subscribers express interest in specific types of data, and process messages that contain this data, without knowledge of what publishers there are.

Among other things, PubSub allows peer-to-peer communication between industrial controllers, and between controllers and human-machine interfaces (HMIs). The peers are not directly connected and do not even need to know about the existence of each other. It also allows things like asynchronous workflows and OPC UA Servers to stream data to applications hosted in the cloud.

Improving information exchange

Thanks to ongoing FDT/OPC collaboration, members of the industrial automation industry have a choice of meth-
ABOUT TECHNOLOGY DEVELOPMENT MEMBERSHIP

Continued
All the Data Without the Trouble

odologies for implementing a network communication model that suits their specific needs. Both client-server and publish-subscribe models are included in the FDT for OPC UA companion specification.

With the client-server approach, the client goes through OPC UA to access current data values but must keep asking to verify the information. This is done either through a program in the OPC UA Client or by having an individual do a manual “refresh.”

Alternatively, the emerging FITS architecture can employ a publish-subscribe methodology allowing sensor, network and topology information to permeate the enterprise, including mobile devices, distributed control systems (DCSs), programmable logic controllers (PLCs), manufacturing execution systems (MESs), enterprise resource planning (ERP) systems, the cloud, IIoT and Industry 4.0.

The publish-subscribe methodology eliminates the burden of request-response communication. Clients essentially say, “I’m interested in a particular piece of data, so please tell me whenever it changes.” Multiple clients can subscribe and receive notifications at once. The server will automatically notify all the subscribed clients when the specified information has changed according to the predefined parameters. This approach has been proven to save valuable system bandwidth. Think of a child in the back seat of a car asking, “Are we there yet?” The child is now quiet until something changes (i.e., the parents in the front seat announcing, “We’re here!”).

A typical use case for the publish-subscribe communication model is employing OPC UA and an FDT/DTM to monitor device health. By requesting notification only on changes in device condition, system and network resources are freed from continually polling the device to ascertain its health.

One of the key advantages of the FDT architecture is OPC UA is an easy plug-in. There’s no need for changes to the communication, gateway or device DTMs. The FDT standard is robustly written so that it is only necessary to intercept communications at the right points within the FDT/FRAME or FDT Core Server in FITS to fully enable OPC UA. Plant or factory personnel can see all the networks on the server, as well as all FRAME applications and devices with DTMs through OPC UA. In addition, developers writing communication or device DTMs don’t have any added requirements to support OPC UA.

In the classic automation architecture, a DCS or PLC is located near the middle of the hierarchy and communicates with all of the upper level business systems like MES and ERP. This activity is completely eliminated with the integrated FDT/OPC UA solution.

Benefits to industrial enterprises

As described in this article, the FDT/OPC UA information model was designed to provide expanded integration capabilities along with ease of implementation. When industry stakeholders implement OPC UA, however, they may have challenges using the technology within their automation architecture due to the data trafficking role of the PLC or...
DCS. This could require the assistance of a process or control engineer to expose the required data from the control system to OPC UA.

FDT/OPC collaboration is intended to eliminate the typical constraints in industrial communication. When most engineers think of OPC UA, for example, they envision it running at the Ethernet level – but some kind of device hardware is needed to reach a compatible network. With the addition of FDT technology, users can take advantage of their existing infrastructure, thus bypassing any PLC or DCS that’s in the architecture and communicating directly with end devices through OPC UA. As long as the device has a DTM in the FRAME or Server, the user will be able to access the device and all of its data through OPC UA.

If the user already has an FDT/OPC UA-enabled application in the architecture there is no need for additional configuration other than assigning security credentials. At that point, every bit of data inside FDT is accessible through OPC UA. Engineers are no longer faced with modifying ladder logic or writing rules for DCS systems. Thanks to an OPC UA Server inside an FDT application, all of the information is available. Nothing is held back, and there is no need for extensive configuration work to get the desired data. If a DTM is present, every bit of data about a device is available through the application.

Furthermore, IT departments utilizing MES or ERP systems don’t have to consult with a PLC or DCS programmer every time they want to access specific types of control data. They can just browse the

**Figure 2: FDT IIoT Server (FITS) topology**
server structure and find the necessary information. IT personnel also have a choice of ways to interface with the FDT Core Server.

OPC UA is a known entity in the IT world with available tools to enable full connectivity and easy integration. As an option, FDT Web Services can be used to write Apps to support maintenance or engineering organizations. Users can access FITS through web sockets to browse project structures and perform other tasks.

**Conclusion**

Industrial organizations can now bring systems, applications and devices together in a unified architecture to exchange information throughout the enterprise. With integration of the FDT and OPC UA standards, they have an optimal approach for multi-network intelligent device configuration and data interchange.
Device and Topology Independent Data Logging for NOA with FDT

FDT AsseTT streamlines asset management integration and information access

With FDT AsseTT Thorsis Technologies has released a system for automated, contextual data capture in the sense of NAMUR’s proposed Open Architecture (NOA). FDT AsseTT enables the automatic acquisition of device data and makes it available to any OPC client for further processing via an OPC server connection. In addition, the Ethernet-based communication gateways of the isNet Line provide a perfect complement to the software solution in order to realize an alternative communication access to the fieldbus system. A first example installation is currently being successfully tested at BASF SE in Ludwigshafen as part of a pilot plant.

Heart of FDT AsseTT is the FDT AsseTT DTM, an enhanced version of the generic device DTM “isEDD View DTM” from Thorsis Technologies GmbH. The DTM interprets the EDD of field devices for the fieldbuses HART, Profinet and Foundation Fieldbus at runtime. The EDD provides device-specific information about available configuration and status parameters that are used to configure the OPC Server FDT AsseTT Server. Based on the proposed extensions of the EDD language syntax to support semantic information, a partially automatic configuration of the FDT AsseTT server can be realized in future. Currently, this information still needs to be provided manually when configuring the FDT AsseTT server via the FDT AsseTT Scheduler. On the other hand, this manual variant also offers the possibility of configuring plant- and applica-
tion-specific parameters for data acquisition, which go beyond the context of the core parameters of NAMUR Recommendation 131 and thus open up many options for prognostic asset management.

New is the connection of the FDT AsseTT DTM to the FDT AsseTT server. After instantiating the DTM in the FDT frame application with a device type, the DTM attempts to register on the OPC server for data collection. The FDT AsseTT Scheduler determines the sequence, the frequency and which parameters are used for the data acquisition. The scheduler provides the ability to access any number of DTM instances, including the needed FDT network architectures. The user can configure any number of schedules for data acquisition and also specify which parameters are to be retrieved from each field device.

To ensure an optimal connection of the OPC servers to the plant structure, FDT AsseTT provides with the FDT AsseTT Frame a specific FDT/FRAME application as well. Through an integrated scripting function, the FDT AsseTT server can control this FDT frame and load DTM projects as required, set them online and start the data retrieval. In this system variant, any network topologies with communication and gateway DTMs of any manufacturer can be used. The FDT/FRAME can be configured in accordance with the NAMUR concept in a way that only reading access to the parameters of the connected field devices is possible.

In summary, it can be stated that with FDT AsseTT a complete implementation of the NOA concept including an alternative communication access through Ethernet based communication gateways of Thorsis Technologies GmbH is possible.
FDT IIoT Server-Based Architecture Reaches Member Review Milestone

Emerging specification to transform open, standardized integration enabling sensor-to-cloud, enterprise-wide connectivity for next-generation automation solutions

FDT Group, an independent, international, not-for-profit standards association supporting FDT® technology (IEC 62453), today announced that its emerging FDT IIoT Server™ (FITS™)-based specification has been released for FDT member review. The FITS architecture is set to empower the intelligent enterprise with native integration of the OPC Unified Architecture (OPC UA), as well as comprehensive control and web services for secure mobile, cloud, fog and enterprise-wide applications in the process, hybrid and discrete automation sectors.

FDT was founded to set the stage for open, standardized integration for bi-lateral communication and access to asset analytics across the industrial enterprise. Today, it is the de-facto control system and device integration standard, adopted in millions of installations worldwide. The holistic nature of FDT has allowed the standard to evolve to become “timeless” in supporting next-generation automation solutions demanded by the fourth industrial era (Industry 4.0), which is transforming the connected world of automation.

Industry-driven feedback has been the basis for the growth of FDT technology since the release of the original Version 1.2 specification in May 2001. The recent release of the FDT 2.1 standard builds on the success of FDT 2.0, issued in April 2012, with a robust combination of features, including improved security, faster performance, ease of use, and investment protection. These progressive efforts underscore FDT’s transformation as a complete, standardized Industrial Internet of Things (IIoT) architecture enabling sensor-to-cloud, enterprise-wide connectivity for the new era of automation.

“The emerging FITS architecture built off the trusted FDT technol-
ogy is the ‘game-changer’ the automation industry has been anticipating,” said Glenn Schulz, FDT Group Managing Director. “Designed to empower IIoT and Industry 4.0, and leverage the recent release of FDT 2.1, the FDT IIoT solution is built surrounding a core FDT Server, which serves as a broker for wide range of client/server interactions, whereby communication between key components is standardized for its’ Control, OPC UA and Web Services interfaces.”

Because of the security, scalability and the ease of deployment of an FDT FITS Server, the solution will simplify entry into the IIoT marketplace as the only standardized integration architecture providing a single interface with mobile access cloud-to-plant-floor. FITS features robust layered security leveraging vetted industry standards, and utilizes transport layer security (TLS) to establish a hardened shell and encrypt all communications. Optionally, it can authorize devices that connect to the FDT FITS Server. User-based security is employed to determine the user’s role and rights within the application.

“Release of the FITS specification for member review is a major milestone in the development process as we prepare for release to the public in the fourth quarter of 2018,” Schulz said. “Hundreds of people and work-hours have been pinned to all aspects of the FITS architecture, and we are thrilled with the progress and innovative advancement it will deliver for both manufacturers and end users across the automation spectrum.”

The final standard will be delivered as three documents: the FDT 2.5 specification, which builds on FDT 2.1 to include the HTML5 and JavaScript graphical user interface features; the FITS Web Services Technical specification, which describes the Web Services interfaces and requirements for an FDT Server; and the OPC UA annex detailing the OPC UA server mapping for an FDT Server.

Developers interested in implementing FITS are encouraged to join the FDT Group. To fully support and accelerate adoption of the new architecture into the marketplace, a comprehensive development solution comprised of Common Components will be delivered together with the release of the FITS specification. Common Components create a library of FDT routines and will simplify compliant development of FITS-based solutions such as Servers, DTMs and APPs.
Point LLC Joins FDT Group As Corporate Member

Company plans to develop Device Type Managers (DTMs) for transmitters to meet customer demands

FDT Group, an independent, international, not-for-profit automation integration standards association consisting of leading companies and organizations active in industrial automation and manufacturing, today announced that Point LLC has joined as a Corporate Member. Based in Polotsk, Republic of Belarus, Point LLC is a developer and manufacturer of instrumentation for the industrial automation marketplace with distributor representation in Russia, Kazakhstan, Ukraine, Czech Republic and Moldova.

FDT Group’s major purpose is to provide an open standard for enterprise-wide network and asset integration for seamless exchange of performance-driven data for the intelligent enterprise. Membership in the organization offers unique advantages for the entire industrial automation industry, including end users, suppliers/developers, service providers, universities, and individuals. Members are involved with providing innovative FDT®-enabled products, solutions and services, and can join working groups, technical project groups and marketing committees to help direct the technology.

Point LLC offers an array of digital pressure and temperature transmitters for the energy, petrochemical, and oil & gas industries. Typical applications include kilns, boilers, drying ovens, climate chambers, petrochemical cracking catalysts, process pipe surfaces, and safety alarm systems for steam-gas turbines. The company’s technology advancements have been realized in sensor-based product development, especially transmitters used in critical environments for heat metering, flow sensing, level/depth measurement in open and closed reservoirs, and climate monitoring in test laboratories and pharmaceutical warehouses.

FDT Group Managing Director Glenn Schulz welcomed Point LLC as the newest FDT Corporate Member. “FDT’s open, independent, vendor-neutral and standardized integration environment is empowering the intelligent enterprise,” Schulz said. “We appreciate Point LLC’s support for FDT and look forward to the release of their new DTM offerings to support their line of pressure and temperature transmitters employed by users in their region.”

Instrumentation developers such as Point LLC become members of...
the FDT Group to leverage FDT technology to enable advancements for sensor-based industrial instrumentation meeting the demands from the marketplace in the process, hybrid and discrete automation markets, according to Samir Nabiyev, deputy general director for Point LLC. He commented, “The majority of our customers use FDT and require FDT/DTM-enabled solutions when seeking new instrumentation. By developing DTMs for our pressure and temperature transmitters, we will become more competitive in today’s market.”

The FDT standard was founded for smart, intelligent integration of control systems and field instrumentation, and is the industry’s de-facto integration standard with millions of devices and systems currently deployed. The basic components allowing seamless integration with FDT include the Device Type Manager™ (DTM™), an executable driver for intelligent device or communication components; and the FDT/FRAME™ application, which is the interface in a stand-alone environment or embedded in an asset management application or other engineering application where the DTMs are loaded for integration and communication for lifecycle management of networks and end devices.

FDT Group offers comprehensive development resources for automation suppliers seeking to implement its technology. This includes DTM Common Components, which speed products to market and free developers to focus on unique differentiating features; and dtmINSPECTOR, the official test-tool ensuring DTM conformance to the FDT standard. For developers looking to outsource DTM development, FDT Service Providers can help strategize FDT solution offerings.
Join the FDT Group

FDT Technology continues to be at the forefront of industrial automation advancement, with a truly open and standardized architecture to address the critical needs of the ‘Connected World’ of the Industrial Internet of Things (IIoT) and Industry 4.0. FDT Group has a strategic vision focused on the “Connected World” enabling a FDT/IIoT architecture supporting mobility, on-the-wire security, and comprehensive interoperability through an ecosystem of automation vendors providing tomorrow’s new adaptive manufacturing assets.

Join other leading companies in the FDT Group today. There are unique advantages for the entire industrial automation industry – end users, suppliers/developers, service providers, universities, and individuals.

For membership information, please visit www.fdtgroup.org