DATA FLOW SOLUTION

DATASHEET

CONNEXITE

TABLE OF CONTENTS

CONNEXONE DATA FLOW SOLUTION

Data becomes the most valuable corporate asset of modern times. Company values are measured by the amount of relevant data, while an ignoring leakage may corrupt your reputation in the blink of eye, so all your investment in time, money and effort would be insignificant.

On the other hand, we are living in an era of communication. Very fast, reliable and integral communication is todays de facto standard, which separates winners from old fashioned strugglers.

We need to find an exquisite balance between data security and communication, so daily operations should work without compromising corporate values or government, operational performance and military secrets.

Above all security measures, **ConnexOne**, would provide a secure, guaranteed, and integral delivery of data from a restricted and well protected network to more open and widely accessible zone. With limited physical connection, a single directional flow is created for data transfer. All valuable data would be encrypted, fingerprint cleared and when possible masked before sending on an optional non-ethernet based link.

ConnexOne modular software architecture and license model provides easy integration and not enforcing unnecessary functions to be bought on day one, and makes hardware replacement in case of higher performance requirement, possible.

Flexible Software Architecture designed by Connexite Engineering Team, would allow tailored solutions to be implemented, so you don’t need to get stuck in a pre-defined set of functions.

Connexite promises to deliver. Your requirements need custom solutions, and no one should force you to adapt the solution provided, instead the solution must adapt to your requirements. Different businesses with distinct needs would implement only required functional modules and would be free to ask new protocol deployments, without any additional development costs. Because here in Connexite, we know that the way of doing business in different regions, countries and cultures are very different to each other, when it comes to security, there is no one size fits all solution.

FLEXIBLE DEPLOYMENT

ConnexOne comes as two sisters. There are two devices which reside on different networks, Guardian and Postman. Guardian is the one who collect the data from within the restricted network, prepare for secure delivery and finally send to its sister. Postman receives the data and share it with final destination or store for relevant users to access and download. Optionally you can deploy multiple Postman and spread the data to more than one destination. Also, different hardware pairs are possible, based on your bandwidth, disk and volume requirements.

LAYERED SECURITY

Protocol based security measures can be applied to different data flows. Role based operations for users with different privileges within a hierarchical layered structure, can be created. All users are able to define security protocols and prefer to apply data masking and metadata clearing. Administrators or master users can define which protocols and file types is open to transfer and maximum file sizes. All security measures would be applied separately.

WIDE PROTOCOL SUPPORT

There is no limit for data generation on restricted networks. Documents, photos, video surveillance, management systems and even extra sensitive military data may need to be fly outside of restricted networks. ConnexOne architecture currently supports, File transfers (PDF, DOCX, JPEG etc.), Video, SQL, Syslog, SNMP, MODBUS, OPC, Profinet, MQTT and open to implement any other data type to be proxied over Guardian to Postman.

FUNCTION BASED LICENSING

ConnexOne can provide multiple transfer options for different protocols grouped under different categories and performance metrics. Licensing is based on these categories with some layered approach. ConnexOne devices are capable of running all services simultaneously up to their resource limits, where flexible hardware replacement options, even without paying for an extra hardware is possible. Please visit ConnexOne web site for detailed licensing model.

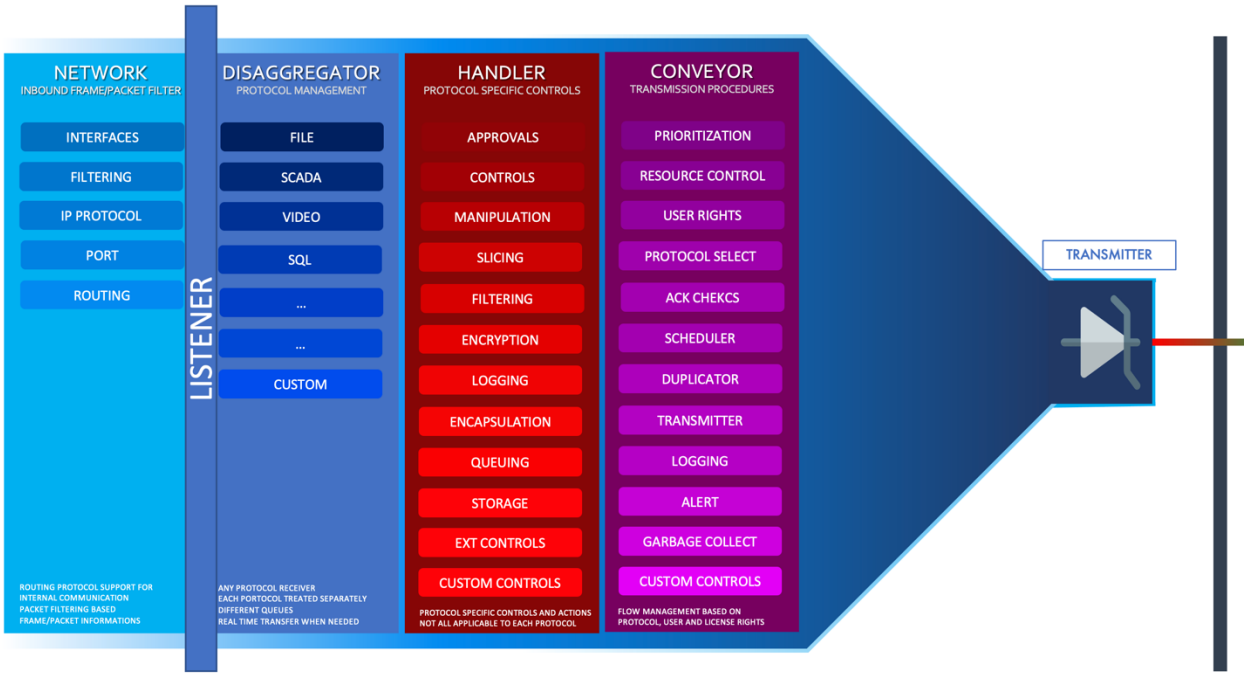
DIFFERENT HARDWARE FLAVORS

Hardware is here only to provide the required medium for data flow. If one needs more function, appropriate hardware scaling would be performed. Different devices from a small embedded server, to a large multi-cpu servers are possible to use with same operating, system, configuration and management functions.

PROTOCOL SUPPORT

ConnexOne modular architecture allows any protocol data to be transferred in a secure, fast and reliable way. There is no limitation on protocol support. This makes ConnexOne, world's first any protocol supported data diode.

Connexone uses a layered packet processing that allows different protocols to be implemented without effecting any other functionality. The architecture makes any new protocol addition possible. Following is an illustration of how flow processing is handled by ConnexOne:



All processes defined in different layers are running separately and adding new functions and features are possible, thanks to Connexite engineered software.

Magic is not only limited to transferring a packet for a specific protocol, ConnexOne also limit, filter, manipulate or block any data based on application and payload. What needed is to add the protocol pack for a specific protocol, and any tailored requirements are always covered by Connexite within your service contract.

Each protocol flow is handled with different set of controls. An SQL schema delivery is subject to schema controls and any unwanted query can be denied and dropped, while a file transfer would subject to user approvals, before sending out from protected zone. ConnexOne handles all process simultaneously in a perfect harmony, by applying complex tasks that makes it possible delivering different business requirements.

FILE TRANSFER

Basics of any data diode product is transferring simple files. Any data diode, even unmanaged ones, are able to pass file transfer. ConnexOne adds many extra features beside just switching single way protocol packets for file transfer purposes.

Easy **web user interface provides the simplest and most user-friendly options to file transfer**. Users can access ConnexOne web interface with practically any browser and upload files into the Guardian unit. If no control is defined, CX-Guardian securely transfer this file to CX-Postman. Optionally **file controls, such as size, extension, type etc.** can be applied. Since files metadata could potentially contain sensitive information, there is an option to **clear all metadata** before transferring the file.

ConnexOne **data masking feature**, reads unencrypted files and replace an administrator defined pattern with another string or completely remove it, if enabled. Although these features would be enough on most deployments, there could be other cases that require sophisticated security controls.

ConnexOne transfer operation can be integrated with other security tools through **ICAP protocol for further inspections.** Depending on answers from ICAP enabled security devices, transfer may be aborted or alarms can be created to share with relevant users.

Some mission critical environments, **need manager/master/superior approvals before a user's file is accepted as transferrable**. There may be more one or more approvers for a user depending on the hierarchical and business structure of the environment. Approvers can download and check files before making any decision. Unless all approvers accept the file, it remains on hold for a configurable time period. If no decision would be made until the due time, file will be denied for file transfer.

VIDEO STREAM

With the ever-increasing use of surveillance solutions, video streams are now a significant part of total network traffic. Allowing remote access to video surveillance for monitoring on mandatory cases, may create security issues. ConnexOne relays camera traffic to remote destinations for view-only purposes, preventing any external commands to be sent into surveillance network.

Video traffic is always encrypted on the fiber delivery, and allow 10 simultaneous video streams. Different camera images can be transferred to distinct receivers, and this decision is only applied from CX-Guardian user interface, preventing any unauthorized user to change video destination.

OPERATIONAL TECHNOLOGIES / OT PROTOCOLS

Data diodes play a critical role in protecting OT networks against cyber threats. These devices act as a secure bridge between OT and IT systems and control the flow of sensitive data. OT networks are generally isolated from the outside world, but in some cases data exchange may be necessary. Data diodes control this data exchange, preventing malware or cyber-attacks from infiltrating OT networks.

ConnexOne supports all widely used protocols in modern OT networks. Devices such as Programmable Logic Controllers (PLC) are responsible with control of industrial machines and also holding data generated within these machines. **MODBUS, PROFINET, OPC and MQTT** are the most popular protocols for information exchange on OT networks. ConnexOne supports all OT protocols, not only allowing the data to be transferred between OT and IT but also provide information delivery to any destination in IT side, no matter what the delivery protocol supported on the destination side is.

ConnexOne supports natively all protocols as server. It acts as MODBUS Slave, Profinet server, OPC-UA Server and MQTT broker and publisher. All these protocols are easily configurable, and **secure communication options** for each are already in place for better security.

SQL SCHEMA TRANSFER AND REPLICATION

Today's databases are not only working as raw data storage tables, but also keep different types of files, and acting as a global repository for any kind of information. This requires database structure to be kept safer and transactions to be more reliable.

Almost all database solutions provide an option to backup or replicate the tables, yet most of these solutions are not dealing with data exchange security, leaving this role to security products. ConnexOne, knows SQL schema's structure and can deliver it over its secure connection.

On top of delivery, it can filter unauthorized queries to be transferred to protect SQL structure from unauthorized actions.

ConnexONE provides a web-based schema control interface, to select which type of queries to be allowed globally, per table or even per fields. Any database replication is also possible by the use of two pairs of ConnexONE, one for each direction, to prevent any access from master to slave network, even in case of any compromise.

PACKET CAPTURES

Having full control of a network, sometimes require deep dive analysis of distinct packets. Most of the times analysis and monitoring are an integral part of IT networks where users and open network connections reside.

There may also be legal requirements that traffic flows should be forward to government agencies for security operations.

ConnexONE allows packet flows to be captured and forwarded to remote receivers. Administrators can simply use, every day filtering patterns from tcpdump or wireshark to select which packets would be captured and also define remote destination for packet delivery.

MANAGEMENT PROTOCOLS

Following the increase on IT based operational processes, corporate IT administration requires more visibility not just to monitor but also to analyze and map IT services with business flows. Thus, collecting information from different systems with distinct protocols has now a significant importance and effect on performance.

These mandates making more management protocols accessible, while keeping the data to be carried with high integrity and reliability.

ConnexONE can forward any management protocol flows to any receiver, even to the remote tools over wide area connections. This way, a greater visibility would be possible by not compromising security, and even adding more precautions for old and unsecure protocols data delivery.

PRODUCT ORDERING

SKU	Description
CNX-ONE-BASE	Base license, 4x1G Copper Interface, 1x1G Fiber Interconnect Interface, 50Mbps throughput, Basic File Transfer
CNX-ONE-RED	Redundancy hardware pair, to be used with high end ConnexOne devices
CNX-ONE-NET-100	100Mbps throughput license
CNX-ONE-NET-200	200Mbps throughput license
CNX-ONE-NET-500	500Mbps throughput license
CNX-ONE-NET-10G	10G Optical Interface License for ConnexOne pair
CNX-ONE-DDA-200	Additional 200GB Disk
CNX-ONE-DDA-500	Additional 500GB Disk
CNX-ONE-DDA-1TB	Additional 1TB Disk
CNX-ONE-DDA-2TB	Additional 2TB Disk

FEATURE LICENSES

SKU	Feature
CNX-ONE-NET-100	100Mbps throughput license
CNX-ONE-NET-200	200Mbps throughput license
CNX-ONE-NET-500	500Mbps throughput license
CNX-ONE-NET-10G	10G Optical Interface License for ConnexOne pair
CNX-ONE-LIC-FILE	Advanced File Transfer license
CNX-ONE-LIC-OT	OT protocol license
CNX-ONE-LIC-VID	Video stream transfer license
CNX-ONE-LIC-SQL	SQL transfer license
CNX-ONE-LIC-MGN	Management Protocols License
CNX-ONE-MAN-API	API License
CNX-ONE-MAN-3RD	3rd Party Application Support
CNX-ONE-MAN-USR	User Management License

SOFTWARE SPECIFICATION

Module	Description
Operating System	Debian based Connexite OS
Protocol Support	Web File Transfer, Samba, Syslog, SNMP, Scada, Web API, Modbus, OPC, Profinet, SQL, MQTT
Security features	PKI Encryption Fingerprint cleaning, data masking, quarantine repository
User Management	Prioritization, user hierarchy, manager/staff binding, user-based feature access, directory services integration, file type, protocol type, quota management,
Logging	Transfer audit, user violation, SIEM integration, alert management, external logging via custom API
Application support	ICAP based Antivirus, antimalware, DLP
Management	Web interface, RestAPI, Mobile App
Customization	Protocol support, logging, tailored solutions

HARDWARE SPECIFICATIONS

Model	CPU FAMILY	CORE	ETHERNET	SFP	EXPANSION
CNX-ONE-1100	Intel Rangeley	2	4x1Gbps		
CNX-ONE-1200	ARM Cortex	4	1xGbps	1x1Gbps	
CNX-ONE-1400	ARM Cortex	4	4xGbps	2x2.5Gbps	
CNX-ONE-2000	Intel Celeron	4	6x1Gbps		
CNX-ONE-3200	Intel Denverton	2	6x1Gbps	2x10Gbps	1
CNX-ONE-3400	Intel Denverton	4	6x1Gbps	2x10Gbps	1
CNX-ONE-3800	Intel Denverton	8	6x1Gbps	2x10Gbps	1
CNX-ONE-4600	Intel Denverton	16	6x1Gbps	4x10Gbps	2
CNX-ONE-10800	Intel Xeon	8	4x1Gbps	4x10/40Gbps	2
CNX-ONE-11600	Intel Xeon	16	4x1Gbps	4x10/40Gbps	2
CNX-ONE-13200	Intel Xeon	32	4x10Gbps	2x40/100Gbps	2

OPERATION INFORMATIONS

Model	TEMPERATURE		INPUT VOLTAGE	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION
	OPERATING	STORAGE			
CNX-ONE-1100	0-50	-20-70	12V	20W	68 BTU/h
CNX-ONE-1200	0-50	-20-70	12V	20W	68 BTU/h
CNX-ONE-1400	0-50	-20-70	12V	30W	102 BTU/h
CNX-ONE-2000	0-40	-20-70	12V	44W	150 BTU/h
CNX-ONE-3200	0-40	-20-70	12V	60W	204 BTU/h
CNX-ONE-3400	0-40	-20-70	12V	60W	204 BTU/h
CNX-ONE-3800	0-40	-20-70	12V	60W	204 BTU/h
CNX-ONE-4600	0-40	-20-70	12V	90W	305 BTU/h
CNX-ONE-10XXX	0-40	-20-70	220V	410W	1400 BTU/h