

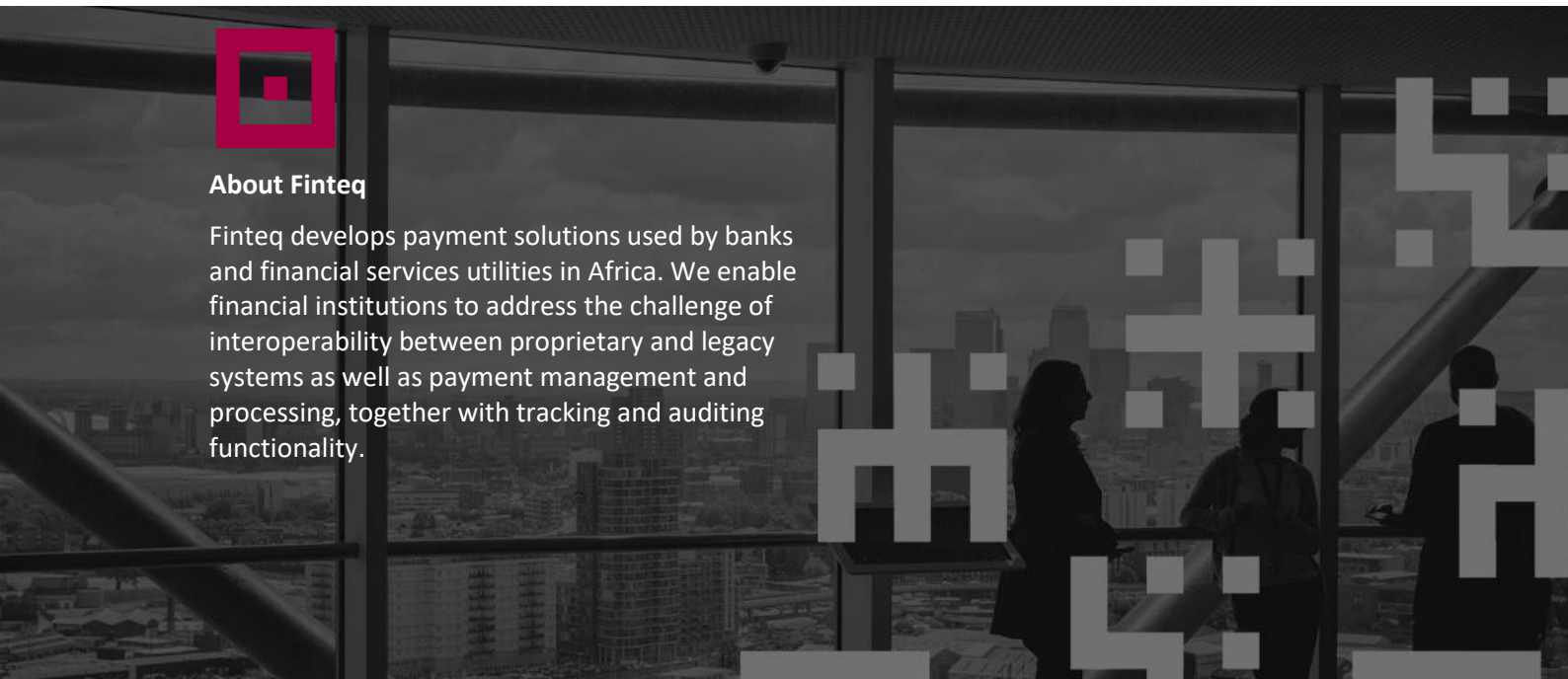
FCH

FINTEQ CLEARING HOUSE



About Finteq

Finteq develops payment solutions used by banks and financial services utilities in Africa. We enable financial institutions to address the challenge of interoperability between proprietary and legacy systems as well as payment management and processing, together with tracking and auditing functionality.



WHAT IS THE FUNCTION OF AN AUTOMATED CLEARING HOUSE (ACH)?

An Automated Clearing House (ACH) is a facility established within the financial services industry whose major function is to administer and control the exchange of payment transactions between participating financial institutions within a particular geographic location.

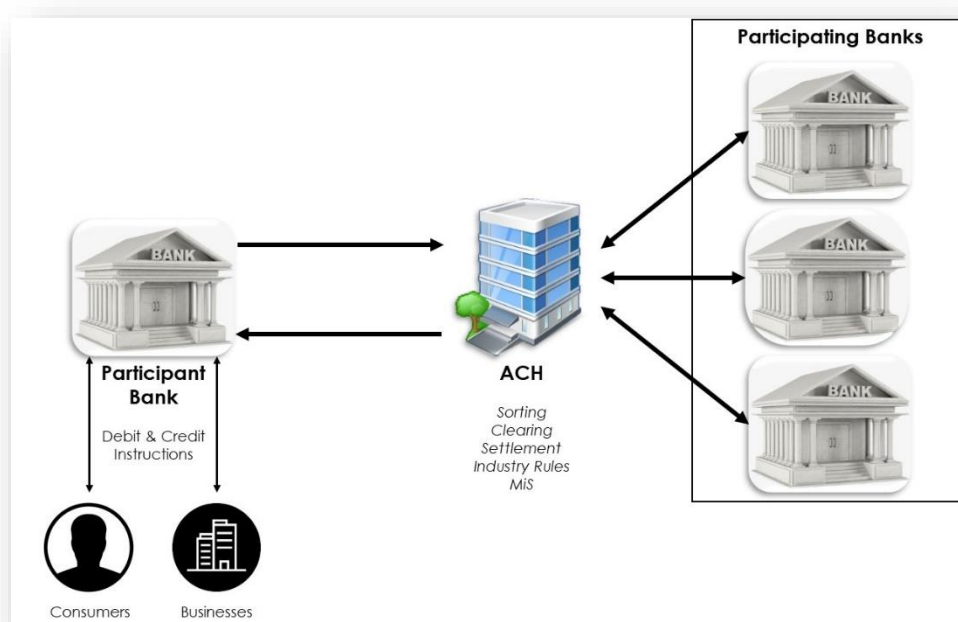
Whilst the early deployment of ACH services was predominantly for the interchange of cheque payments, more recently, these facilities have become responsible for the exchange and clearing of large volumes of debits and credits, involving different payment types.

ACH credit transactions include direct transfers of salaries and wages, consumer account payments to service providers and utilities and other account disbursements. ACH debit transfers include amounts payable such as insurance premiums, mortgage loan repayments and other recurring payments. In addition to the interchange of payment instruments between financial institutions, the ACH is the primary agent for the calculation and settlement of amounts owing between creditor and debtor participants. The ACH is responsible for the accumulation of amounts due to or by each of the Banks involved. Depending on the rules prevailing in a particular arrangement, settlement figures are advised by the ACH to the appropriate Central Bank Authorities who then provide financial reimbursement to the affected

parties in settlement of the amounts owed and payable.

As a direct result of the intermediary role performed, ACH's are the de facto custodians of the rules and regulations that apply to a particular clearing region or community. The ACH is typically responsible for ensuring compliance by all the participants with all the various arrangements/rules that govern a local clearing system. Such a role demands a high degree of integrity and trust with similarly high levels of accountability and reliability. Consequently, the procedures employed by the ACH need to provide the ultimate in availability, resilience, auditability, and control, in support of an efficient and effective payments clearing and settlement service.

The Automated Clearing House maintains comprehensive records, audit trails and reports of all financial transactions processed between financial institutions. The ACH performs a pivotal function in the production of financial reporting and statistics relating to interbank payment services. The ACH also performs an important role in the management and resolution of queries and disputes that might arise from the normal course of business.



THE FINTEQ VALUE PROPOSITION

FINTEQ CLEARING HOUSE (FCH)

In our experience, together with the clearing house, it is possible to derive a suitable implementation plan, which delivers the desired migration path in the most cost effective and risk averse manner.

Finteq has developed a clearing house which incorporates the ISO 20022 processing principles at its core. It is our expectation that managing the new requirements flowing from payment modernisation projects should not pose any significant risk to users of the FCH due to the fundamental design principles employed in its design.

By design, the ideal FCH implementation is incremental or phased, beginning with an initial implementation of base products (e.g., EFT Same day and Dated debits and credits) at which point the essential clearing house interfaces, financial and non-financial flows, and exception processing principles are established. Once the foundation FCH product has been successfully integrated into the domestic or regional architecture, it becomes a relatively straightforward process to increase the payment stream scope at a pace that is manageable for all parties. In our experience, together with the clearing house, it is

possible to derive a suitable implementation plan, which delivers the desired migration path in the most cost effective and risk averse manner.

The following key strategic value propositions have been identified which make Finteq and the FCH well aligned to both domestic and regional clearing house requirements from both a company and a product perspective:

Finteq is already integrated to different payment systems in 13 African countries, including South Africa.

Finteq has detailed understanding of multiple African country domestic industry and clearing rules.

The Finteq solution is ISO 20022 compliant for debit and credit processing streams.

The Finteq database is based on ISO 20022 standards and contains enrichment modules to cater for the data requirements of different clearing environments and payment streams, without implementing complex data structures.

The Finteq solution is scalable to the clearing house environment.

Finteq release management enables multiple instance deployments.

The Finteq solution can enable system/business monitoring and liquidity exposure depending on the level of information made available to the FCH.

The Finteq pricing model is volume-based and is cost-effective.

Finteq is a South African based organisation which enables direct support models.

The Finteq solution supports multi-currency processing.

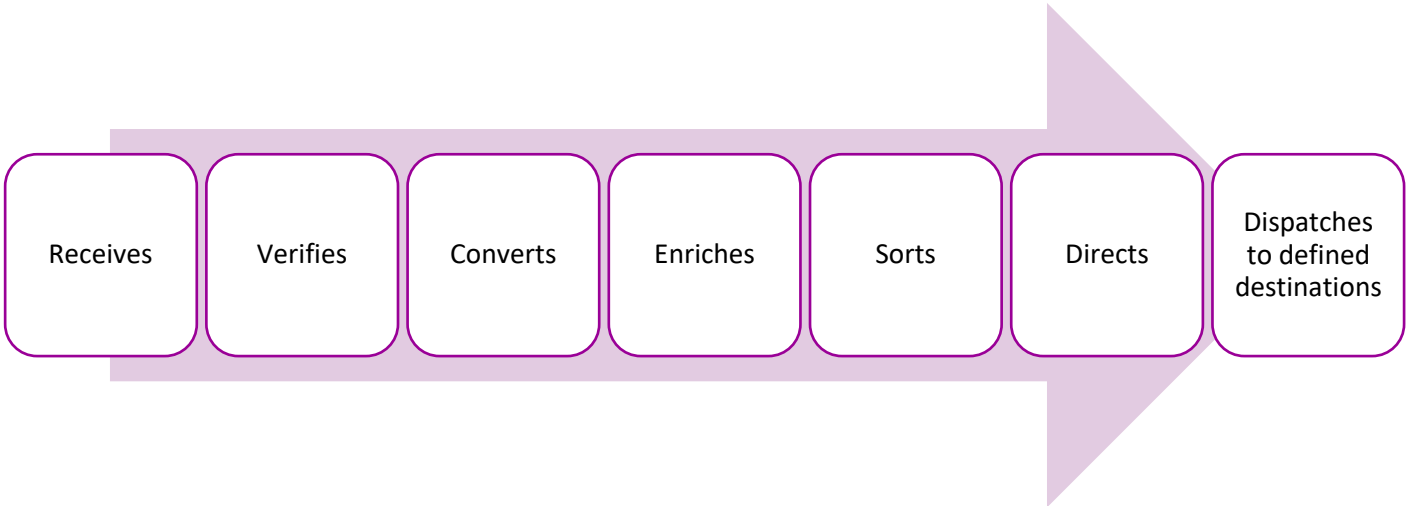
As a South African based company Finteq pricing is Rand based, thus making it highly competitive when compared with international suppliers.

Any gaps in the specific processing requirements for a customer will be fully ascertained during detailed requirements gathering. This may be due to local requirements which are bespoke for a given country or region, and which cannot be known unless there is a deeper level of engagement. In addition, local industry rules and regulatory requirements differ from country to country (or region). Our capability and functionality listing (and product maturity status) are provided in the following sections to support the identification of any possible gaps that will need to be developed.

PRODUCT CONTEXT

The Finteq Clearing House (FCH) solution is a modular system that provides a comprehensive platform for the interchange and settlement of various payment types between financial institutions participating in a particular clearing and settlement area.

The Finteq Clearing House (FCH) performs the following main functions to transactions received for processing:



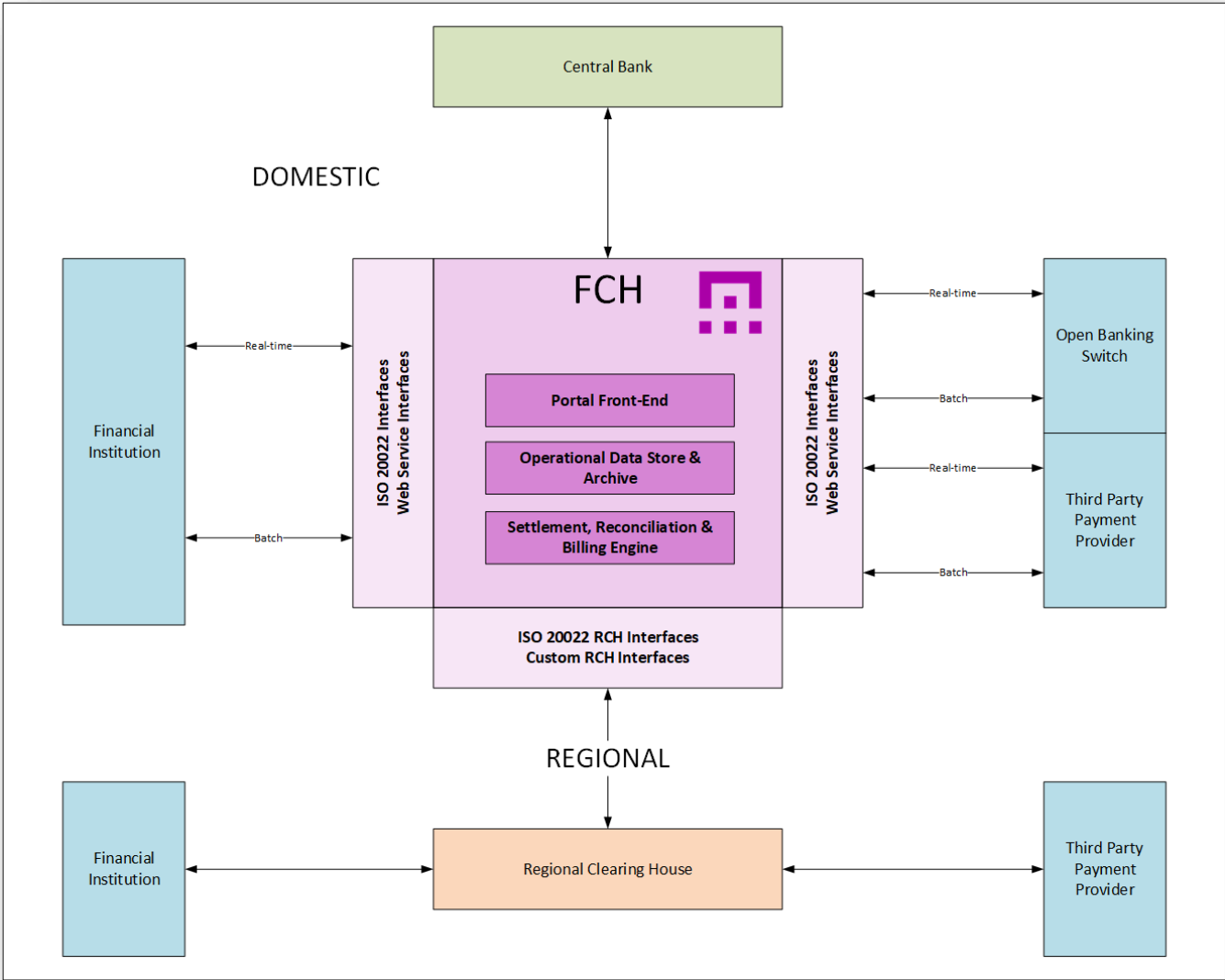
Flexible, predefined workflows are deployed to determine the processes required to manage each different payment type from input to completion.

A major benefit provided by the FCH solution is the ability to enable the rapid creation of a new clearing and settlement system or to allow the participation of new participants in an existing arrangement.

Although the system is developed to handle ISO 20022 standards, the FCH also provides the ability to convert other file formats within the receiving/dispatch gateway modules to enable the participation of other protocols and formats.

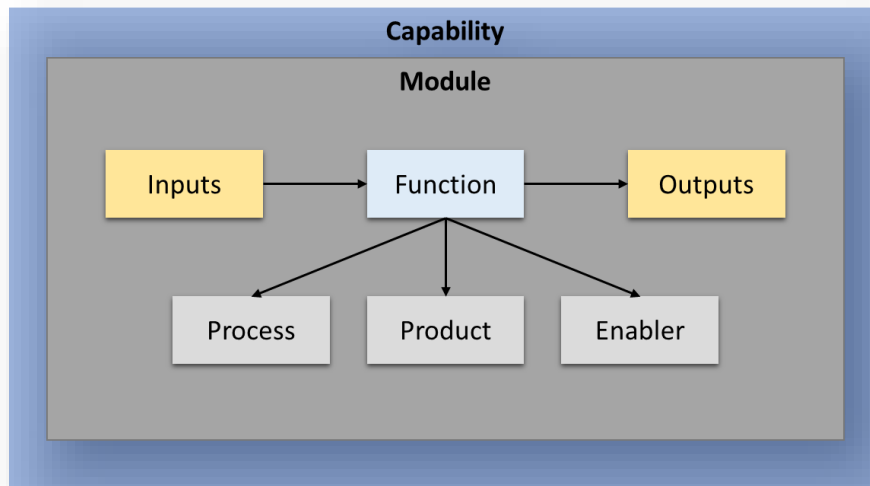
Following the receipt and validation of input submissions, payments are passed through a financial process that performs the accounting functions relating to clearing and settlement. Transactions are then transferred to the output module which manages the onward distribution of files and payments in accordance with the requirements of the recipient institutions and destination systems.

The FCH solution includes a range of services whose specific purpose is to monitor and control the workflows and activities within the clearing and settlement process. Activities include routine operational processes, exception item handling, system administration, report management and archival/warehousing services. All activities executed by the system are logged and available for functional review and audit purposes. System operations can be managed both locally and remotely to ensure optimal availability and performance

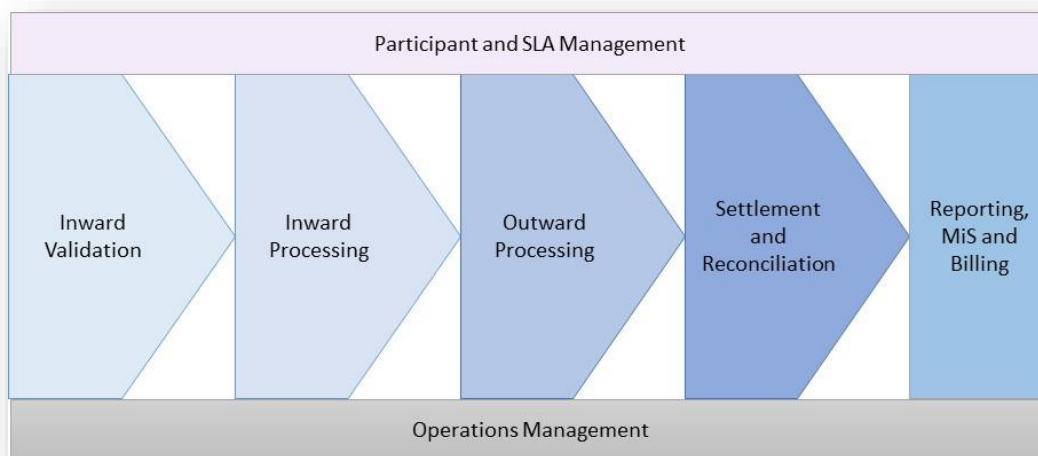


FCH PRODUCT FUNCTIONS AND FEATURES

The FCH is comprised of separate functions in modules that provide our customers with capabilities. The FCH delivers value to these different customers by offering full capabilities or only specific functions based on their individual needs and requirements. Functions are specifically designed to map to customer's business/system processes and are primarily configurable to cater for the differences in domestic and/or regional payment rules and regulations. The capabilities, functions, and modules of FCH are further explained in the following diagram:



Functions, modules, and capabilities provide the functional features of the product. How they are deployed is largely dependent on the customer's requirement and context of the solution in the customer's environment. Capabilities are combined to form the operational value chain of the entire system from a business perspective.



Finteq operates in a dynamic and ever-changing payments environment that stretches across multiple regions. The needs of customers in each of these regions has resulted in certain capabilities, modules and functions being at different levels of maturity and, in some cases, completely customised to requirements.

All FCH functions are included in the product features repository at Finteq. Every function is defined and categorised as developed into the FCH or identified as an item on the product roadmap. Functions are developed as either a customisation for a specific customer requirement or delivered as part of internal initiatives that result in product releases to customers.

Functions are then mapped into the different payment types and standards, which provides our customers with a full view of the functionality FCH offers. Payment Types and Standards are defined as follows:

- EFT – Electronic payments made either within a financial institution or into an inter-bank clearing environment via a manual or automated clearing house.
- ISO 20022 – ISO standard for electronic data interchange between financial institutions. This includes message types in the Payments financial business domain.
- SWIFT – Electronic transfer of funds for international payments.
- RTGS – Real-time gross settlement between financial institutions.
- Cheque – Processing of cheques between customers and banks both domestically and internationally, including truncation where applicable.

Key Features and Functions

Exception handling

The FCH is designed to recognise and manage exception conditions within each processing module/function. This results in an extremely strong exception processing capability, reducing much of the manual intervention normally associated with exception management. Once an exception is recognised the system will react according to a pre-determined ruleset, such as redirecting to a previous process for resubmission, joining an exception queue for manual resolution, or automatic retry before reverting to manual exception queue.

Reconciliation capabilities

All processes within FCH subscribe to a constant balance processing principle. Each process is completed with a starting and closing balance. If the closing balance is not equal to the starting balance and the difference in the value is not due to the process, an imbalance will be recorded and an exception generated. Coupled with the full lifecycle information that is available throughout the process relating to each individual transaction, this simplifies the reconciliation effort.

In the normal flow of events the transaction / file balances will be validated from one function to the next until the full process is completed.

Item life-cycle management

Each transaction is allocated a unique processing identity at inception when it arrives at FCH. The status of the transaction is updated and recorded in the Operational Data Store for retrieval if necessary. This unique identity is maintained for the transaction even when it is sent to external entities such as the ACH. The unique transaction identity is used for query resolution and is tied to the reference number issued to bank customers

Regulatory compliance capabilities

Due to the nimble structure of FCH, compliance with specific payment stream regulatory requirements is easily managed via the core FCH setup parameter tables. If a new regulatory requirement is introduced into an existing payment stream, these are accommodated by way of the change request process. The nature of the change will determine the extent of the necessary changes to accommodate it.

AML capabilities

The FCH is designed to manage the ISO 20022 AML processing requirements as they relate to process flows within the bank i.e., the FCH will ensure that valid AML information is provided as required by participants.

FCH does not currently offer any direct AML processing features or functions as part of the solution.

ISO 20022 compliance

FCH is fully ISO 20022 compliant, to the extent that the various message schemas used can be validated against the ISO website. Where the domestic processing environment subscribes to a standard other than ISO 20022 (e.g., proprietary such as AXS) the proprietary messages will be converted to ISO 20022 on receipt (e.g., inward from ACH), or before outward processing (e.g., outward to ACH). The processing within the FCH remains standard in the ISO 20022 format.

Ability to adopt local regulatory compliance requirements

FCH is designed to facilitate a broad range of regulatory requirements relating to processing such as:

- ✓ session times
- ✓ multiple settlement windows
- ✓ file value and volume limits
- ✓ transaction value and volume limits
- ✓ file size restrictions

Unique regulatory requirements pertaining to specific payment streams are housed together with generic regulatory requirements in a central repository. Being a workflow-based system, each processing stream refers to the regulatory requirements pertaining to that stream e.g., EFT and Cheque processing streams must adhere to differing regulations, Likewise SADC EFT vs domestic EFT. These differing requirements do not pose a challenge for FCH.

SWIFT capabilities

Currently FCH has limited SWIFT capabilities as this is an area of processing that has not been a requirement of our customers to date. Composition and consumption of MT messages used for settlement purposes to/from RTGS are available but the broader message set is not. SWIFT have announced they will be migrating the current message set to ISO 20022 format by 2023. This is a roadmap item for Finteq.

SADC capabilities

Finteq has invested heavily in building a comprehensive SADC ISO 20022 capability and was the first service provider to certify the message exchange processes with BankservAfrica, operator of the Regional Clearing House. BankservAfrica and Zimswitch, the domestic ACH in Zimbabwe implemented the Finteq SADC Payment Gateway in 2017 in anticipation of the system gaining momentum. Due to change in direction by regulatory bodies to meet FATF compliance requirements, this has not transpired, with the more recently agreed hybrid CMA solution being agreed for adoption by October 2019. However, through these efforts Finteq has gained a deep knowledge and understanding of the SADC/CMA requirements and offers the functionality as an optional module in our solution offerings.

Statistics availability

The FCH makes use of an Operational Data Store (ODS) for storing operational data. This repository holds various information from which statistics can be extracted by way of pre-defined queries and report extractions. This functionality extends to the archive for historical data. As a key strategic driver, the FCH databases provide business operations with powerful MIS that enables both operational and strategic decision making. As previously stated, the FCH is based on ISO 20022 standards which, in turn, provides an enabler for bank data mining and trend analysis requirements and “big data” initiatives.

Monitoring tools

The primary monitoring tools offered by FCH are the Operations and Business Dashboards. Configured differently for IT Operations and Business department(s) due to the different focal areas, Dashboard provides real-time information pertaining specifically to the system health and performance for operators and real-time information pertaining to processing values, settlement exposures and high-level service performance for business officers. If the standard dashboards do not satisfy specific requirements, they can be customised by way of the change request process. This customisation includes both analytics (data and statistics) as well as graphical design (look and feel).

FCH PRODUCT ARCHITECTURE

The FCH uses a modular system architecture which allows for the distribution of the various modules over multiple hardware and software platforms, catering for a distributed implementation and separation of functionality to accommodate various security policy requirements.

The FCH is a workflow-driven product allowing for fully configurable workflow/s performing multiple different functions simultaneously. Workflows can be configured to process at real-time or batch (delayed), taking transactional volume, turn-around time, and other processing requirements into account.

Considering that most customer environments have a multi-channel architecture, the FCH is geared to be able to process data from multiple input sources simultaneously via multiple different interfaces in our Inwards Gateway and process the data based on different workflows, using different business logic, rules, routing, accounting etc. and then delivering data output in different formats to multiple different interfaces.

FCH SECURITY

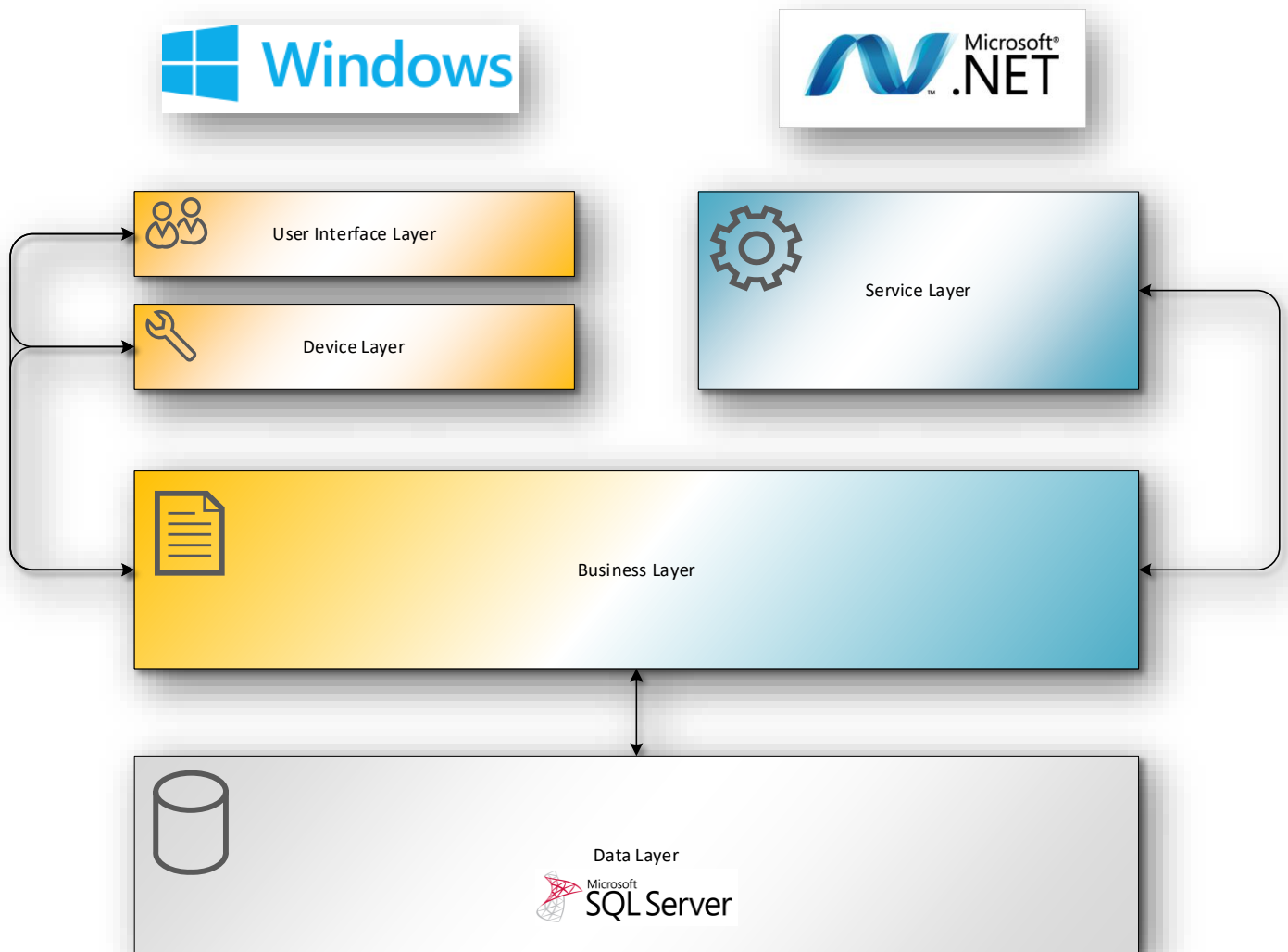
The FCH implements various security platforms and technologies, from operator security access to the FCH, transport layer security, payload encryption, integration security and data encryption at rest and in transit.

Finteq uses the latest algorithms in cryptography, the latest transport layer security protocols and secure HTTP to ensure that the FCH is current and secure.

FCH TECHNICAL OVERVIEW

The FCH makes use of a layered architecture, separating data access, from business rules and logic, from service/integration and device interfaces. Finteq is a Microsoft Gold Partner and as such uses Microsoft technologies to create and enable the FCH.

The FCH is written using Microsoft C# to run on the tried and tested Microsoft .NET Framework, using scalable and stable Microsoft SQL Server as the database engine.





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