



B2N

Tomorrow's best of breed solutions delivered today



MARKETHUB - DESIGNED TO PERFORM

THE B2N CLOUD

Market Hub is a monitoring and data-broadcasting technology, allowing traders, brokers and financial analysts to track and publish changes of financial data or use data for automated trading. It provides a rich set of tools to respond to the ever changing requirements of financial markets.

We allows heterogeneous formatted feeds to be integrated and then demultiplexed again to different client formats using existing 3rd party infrastructure, working with client's existing technology or as a new fresh installation.

Data is accessed from within Excel spreadsheets, off-the-shelf applications and easy to use SDK libraries for C++, Java, C# and COM.

The user experience is refreshingly simple. The principle distinguishing feature is its great flexibility and rapid implementation.

Complementary set of ready-to-use out-of-the-box modules are available which can confidently be employed in the process of building your next generation ticker plant.

Vendor "lock-in" fear disintegrated - Multiple platforms - Windows, Linux, Solaris, as well as multiple transport adapters: B2N's Zero Latency, TCP, RawCast and HTTP; 29West's LBM, IBM's LLM and TIBCO - all and any of these can be exchanged for use via a simple configuration adjustment.

Advantages and benefits of the B2N CLOUD:

- New company with new products that are designed using the latest technology without the need to support an out of date legacy product range.
- The technology provides technical solutions that enable clients to make tremendous overall savings.
- Dynamic and innovative support style where quick and easy access is provided to the development team 24/7.
- As an independent software vendor, B2N has no bias.
- Flexible team with client focus.

IMPLEMENTATION



Modules: OTFE (extreme messaging and OrderBook array deltas), Authority Server (Cache, Access control, Usage report), Client software (Excel subscriber and publisher).

APIs: C#/C++/JAVA/COM/VB/VBA WIN/LIN/SOLARIS/32/64 and Resilience).

Historical pack TimeSeries generator and publisher, data recording and replay.

Web site pack: enabling real-time data in web sites).

Feed Control Pack: control and management of multiple data sources to inject, consolidate, aggregate, generate volume weighted and delayed data.

Transport support: B2N Zero Latency, B2N TCP, B2N HTTP, TIBCO, LBM/29WEST, LLM/IBM.

Adapters: Adapter to RMDS, Adapter to Coral 8.

FeedHandlers: Bloomberg B-PIPE, Bloomberg B-PIPE On Demand (BPOD), RDF, IDC, LSE, Turquoise, Chi-X, BATS, Eurex, European Energy Exchange, Deutsche Börse, Dublin, Shanghai, Vienna , Euronext/LIFFE, AutobahnFX, Currenex, PATS.

THE B2N SERVER

The Server (Authority) is the central piece of software around which all other elements gravitate. It provides all the necessary functionality for simplifying and managing the performance of all other elements.

Authority's main features are:



Multi-level real-time data cache



Data access permission manager



Usage reports



Exchange/View fee cost saving by supporting one connection per user at time



Unlimited clients



Ability to connect multiple authority servers

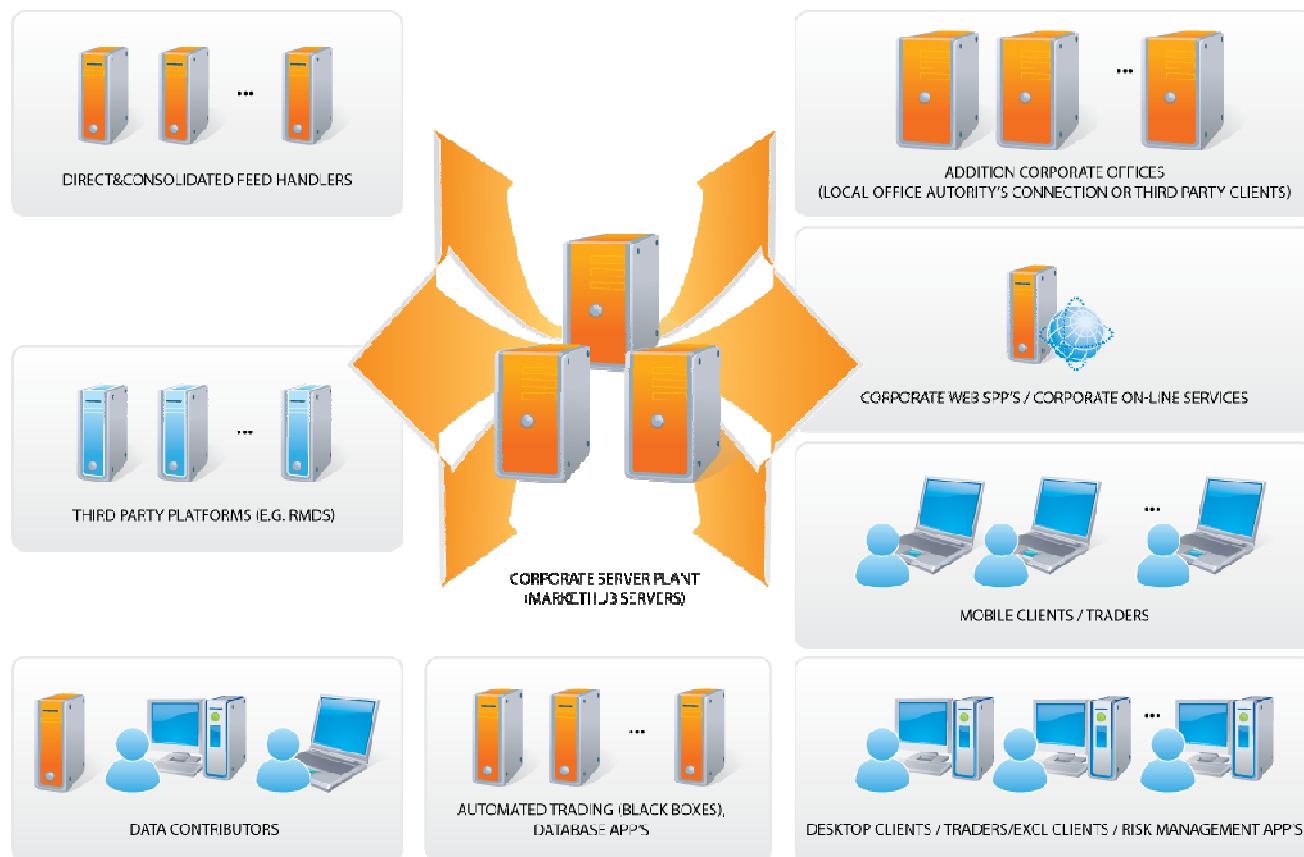


Built-in web server for control, status, instant usage, and ability for custom WebLet's

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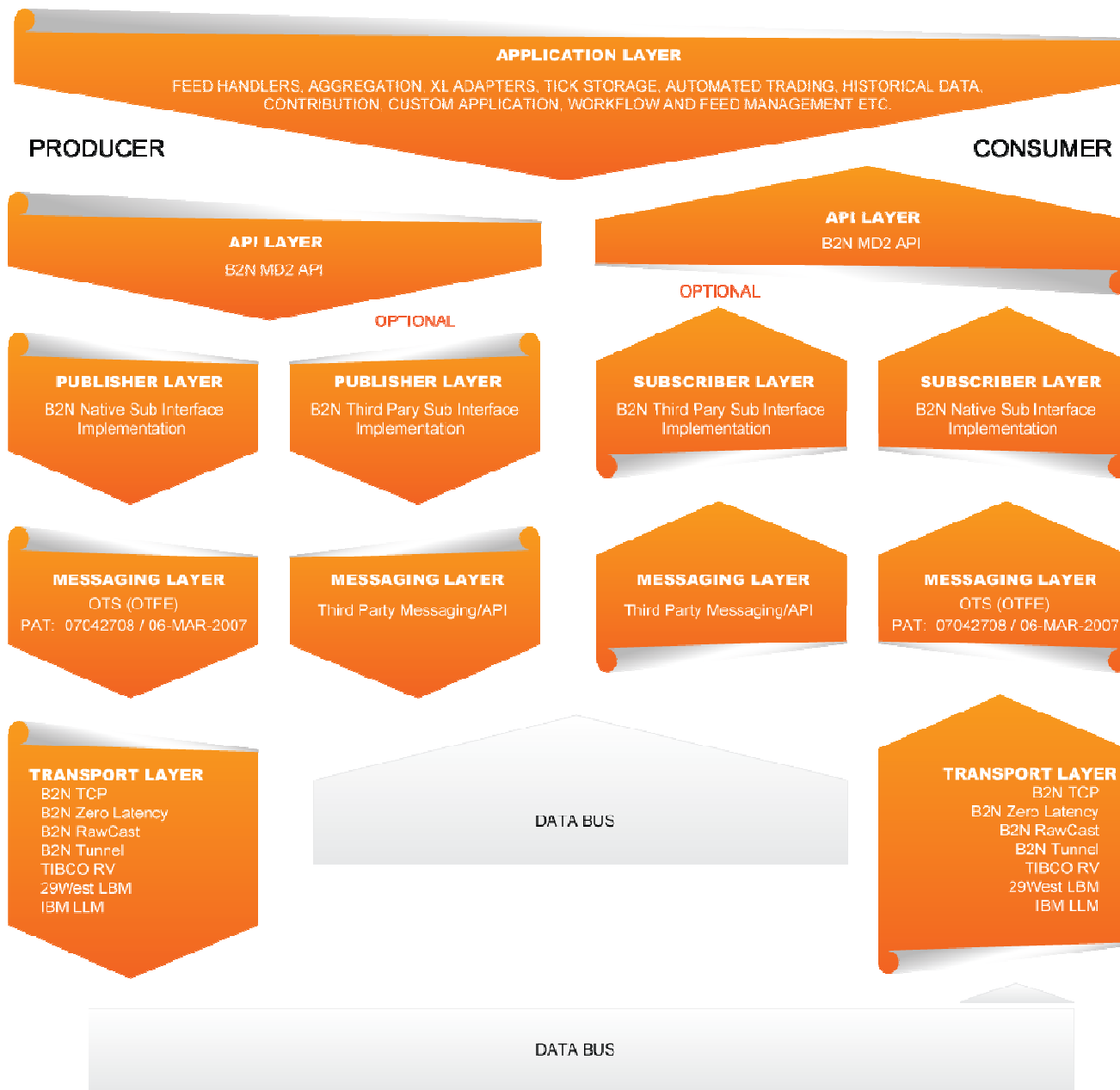
GENERIC SERVER PLANT



GENERAL DATA MODEL



DETAILED DATA MODEL



B2N CLIENT PACK



EXCEL ADAPTER - giving ability to the customers to subscribe and contribute data directly from spreadsheets.



EXCEL TOOLBAR - with ability to control the Excel Adapter features with a click of the mouse.



DEVELOPMENT LIBRARIES - enabling development of custom in-house applications with subscription and contribution abilities, Supported platforms are Windows, Linux and Solaris - 32bit and 64bit. Programming languages - C#/C++/JAVA/COM/VB/VBA



DEVELOPMENT LIBRARIES FOR PROTOCOL DECODER PATTERN for Java and C++ designed to help defining custom network protocols implementations.



VISUAL APPLICATION to display data subscriptions and creating watch lists inside Excel.



AUTO UPDATING capability



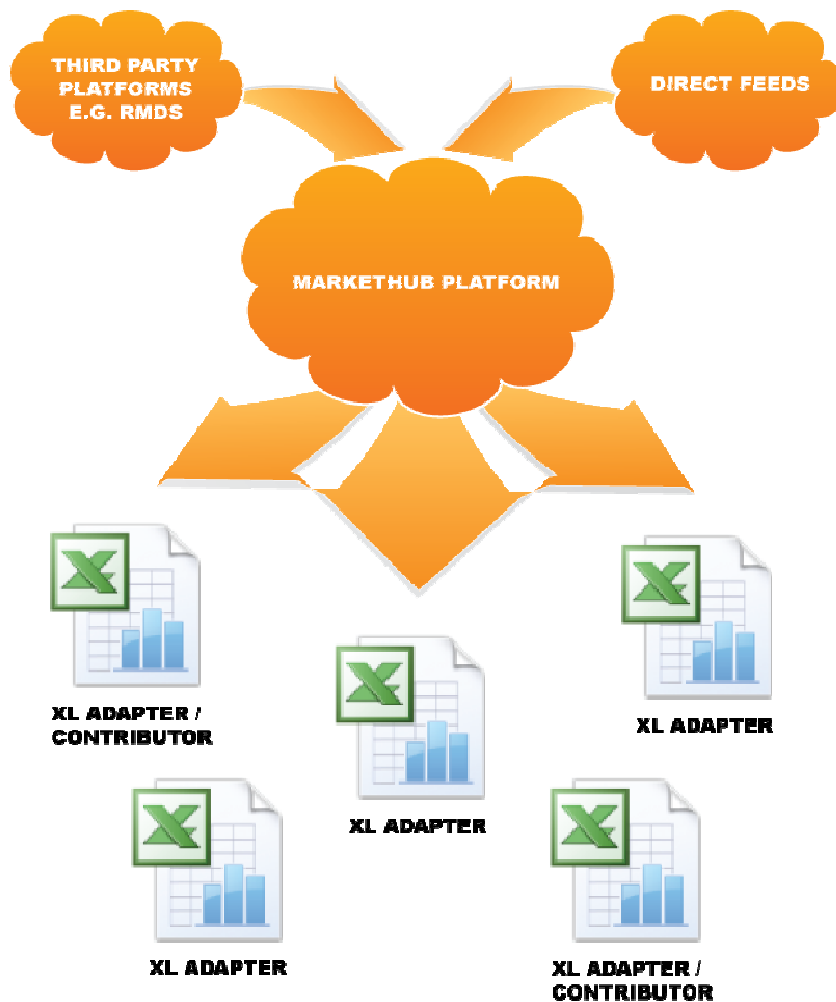
RESILIENCE capability



LICENSE is per machine per year and includes the whole bundle.

THE EXCEL ADAPTER is a powerful tool, enabling you to make specific calculations, charts etc. using information from directly into their Excel spreadsheets. Contribution functions are also available, so you can insert data into the real-time data stream for use by colleagues and applications on your network.

The adapter is based on RTD (Real-Time Data Server), the Microsoft standard which was established with the launch of MS Excel XP/2003. Users can subscribe to as many as 100,000 instruments, depending on their hardware configuration.



In order to receive updates using the MarketHub XL Adapter the following is required:

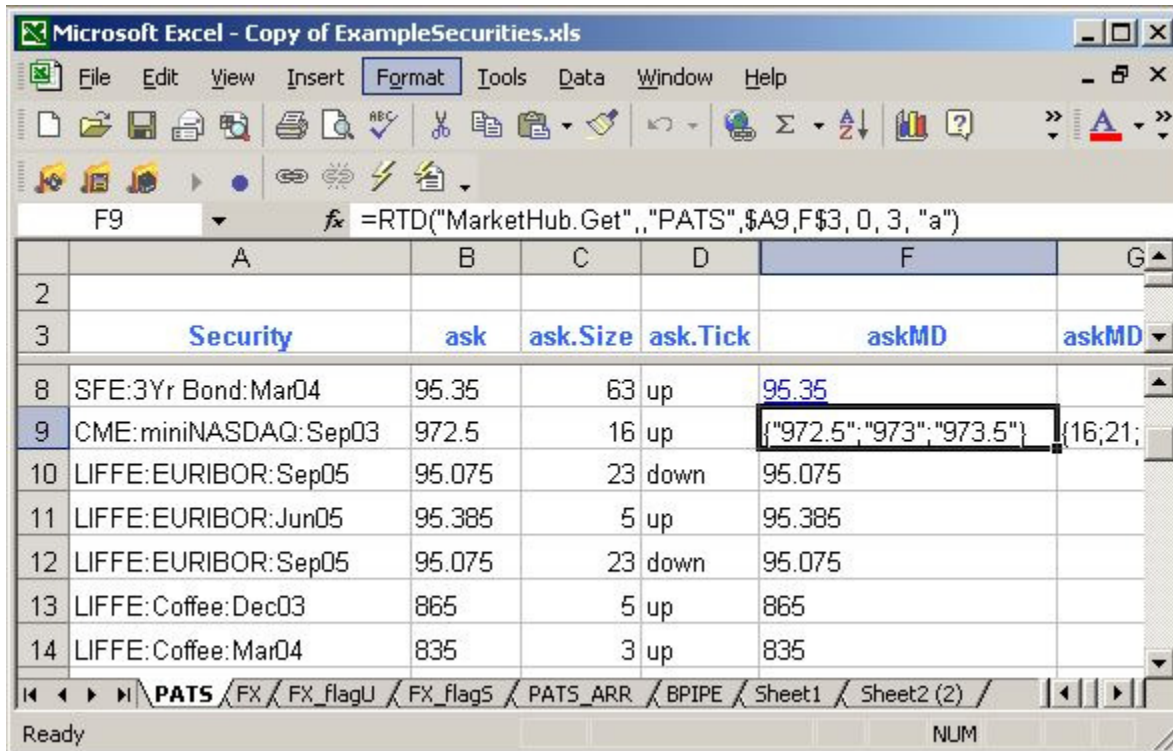
- MS Windows 2000/XP/2003/Vista/7 (32 or 64 bit)
- Microsoft Excel XP/2003/2007
- Standard Market Hub components
- Excel Adapter
- Excel Security Level set to Low or Medium

Users can subscribe for arrays and non-array values.

The generic format for a subscription is:

=RTD("MarketHub.Get",,<SERVICE>,<INSTRUMENT>,<FIELD>)

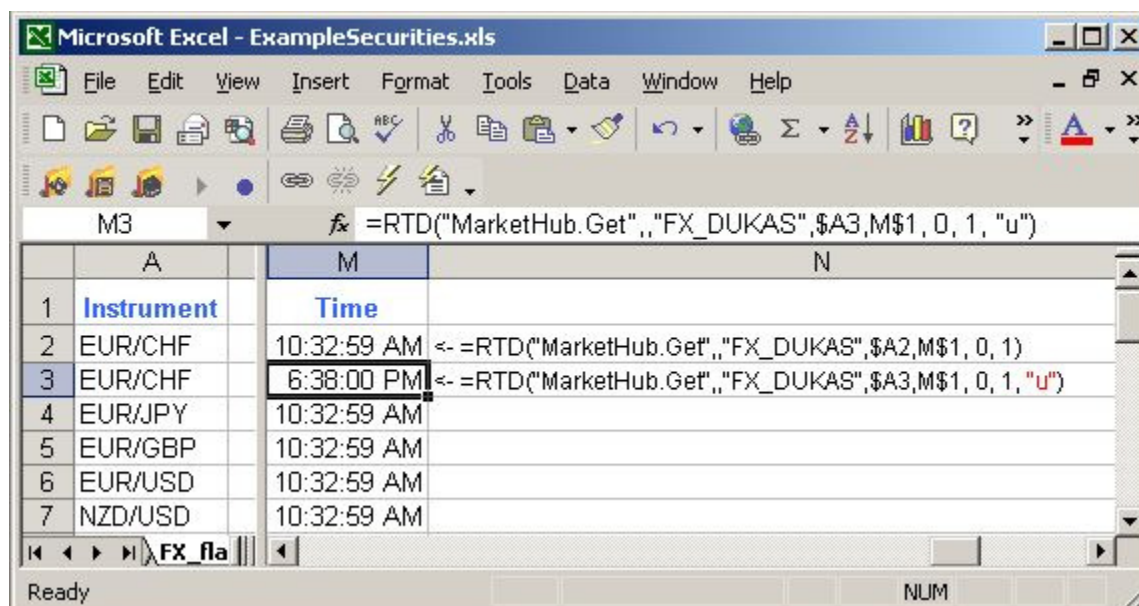
=RTD("MarketHub.Get",,"PATS", "SFE:3Yr Bond:Sep03Mar04", "ask")



MarketHub XL Adapter is able to convert date/time fields in Coordinated Universal time (UTC).

The format of the RTD subscription is:

=RTD (<progId>,<service>,<instrument>,<field>,0,1,"u")



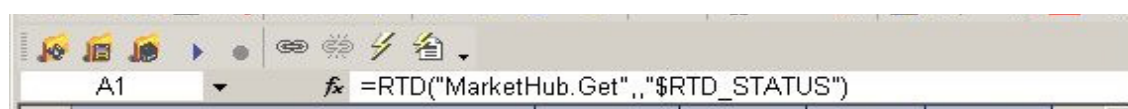
There are special predefined fields for visual information regarding the flow control:

MarketHub.Instrument.Sequence - auto-increment integer value with every update.

MarketHub.Instrument.Status - returns integer value defining the current instrument state.

MarketHub.Instrument.Status.Text - returns a human readable text for the current state of the instrument.

THE XLTOOLBAR simplifies configuration settings, control and statistics of the dataflow.



Always with your convenience in mind, you can also control these features of MarketHub XLToolbar through RTD formulas.

THE DEVELOPMENT LIBRARIES (MD2) comprise a high level framework for building applications that publish or subscribe real-time data. They provide abstractions for objects as Service, Security, etc.

MD2 uses self describing messages in B2N's patented OTFE format, where each record contains information of the type and format of the corresponding value. To enable optimal message serialization, the records are contained in a database which is made known to all and as message structures are known beforehand, a template mechanism is used, further reducing the serialized message size.

“Adapter” - is the entity that interfaces an MD2 application with the surrounding world. There are two types of adapters:

Publishing adapter – allows the application to publish data

Subscription adapter – allows the application to consume data

MD2 comes out of the box with a variety of adapters – TCP, RawCast, HTTP, RMDS, Tibco RV, LBM, LLM to name a few. There is a well defined interface for implementing additional adapters based on your individual needs.

“Feed” - an interface representing a real-time data stream. Each feed can contain one or more services. There are two types of feeds, depending on the underlying adapter:

Subscription feed - the data flows from the adapter, which converts it from the feed specific format to the MD2 one. The application can see the services available on the feed, request security subscription and receive notification of data updates and status changes.

Publishing feed - the data flows from the MD2 application to the publishing adapter. You can define multiple services, receive subscription requests and publish security data updates and status changes.

“Service” - a logical group of one or more securities. Each service has its own status that can be used to quickly change the status of all the securities, thus conserving bandwidth.

“Security” - a financial instrument

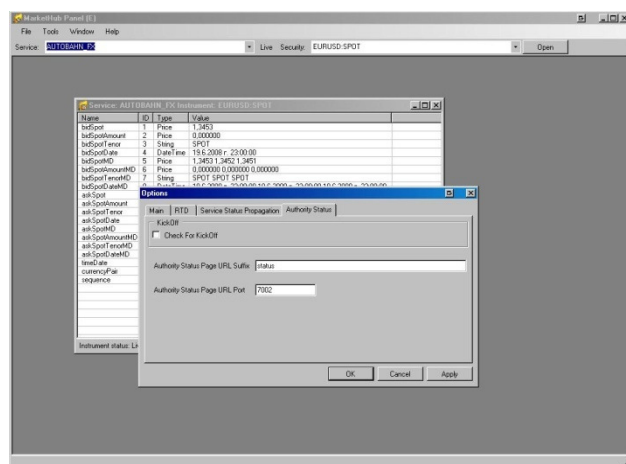
Subscribing for data is as simple as opening a service and then opening one or more securities on that service. The framework takes care to transparently maintain the subscription in case of connectivity problems. Here are the usual steps:

Publishing is extremely simple also – the user implements an interface for receiving subscription request and sending updates. The subscription is based on the principal “First Open Last Close”.

The **MD2 library** is free threaded and reentrant - you can call the library methods on any thread you wish (even from the listener callbacks, without fear of deadlocking). The library takes care of synchronization issues using a range of minimal locking and lock free algorithms. The application listener methods can be called on different threads, depending on the adapter implementations, but generally a single security's listeners will always be called on the same thread.

Connection failures can be either handled transparently to the application or controlled by it, depending on the application requirements. In case of a connection failure, any existing subscription will be kept and re-established transparently to the application – the service/security status will be changed correspondingly to notify the application about the state changes. The publishing securities will be closed, and when the connection is re-established, the application will receive new open requests.

THE VISUAL APPLICATION MHPANEL has a graphical user interface. With it the user can track changes of financial instruments, from different financial markets. It has two implementations – a platform-independent Java implementation and a Windows implementation.



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