

Universal Trading Platform News 03

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Calendar

One-to-one meetings with clients started on 17 June 2008

The objectives of one-to-one meetings are to help our clients choose the best connectivity solution for them and provide them with answers on the Universal Trading Platform Programme.

The first round of one-to-one meetings is dedicated to direct connection clients (CAPI / MAPI). The second round will concern MMBA, co-location and other clients.

For more details and information on one-to-one meetings, please contact your local account manager.

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Editorial

Welcome to the June issue of Universal Trading Platform News. This month we will focus on the Market Data work stream of the Universal Trading Platform Programme.

The goal of this work stream is to deliver a state-of-the-art Market Data feed to clients for all NYSE Euronext markets and asset classes. By leveraging on best of breed technology and expertise across the group, we aim to set a new standard in terms of Market Data distribution, thereby enhancing customers' experience of Market Data. We have a global team in place consisting of Market Data specialists from our Data Solutions division as well as a cross section from all NYSE Euronext markets (Euronext, Liffe, NYSE and Arca) and technology functions (ATS, AEMS and Arca).

The first deliverable of the team has been to produce a set of customer specifications for our Equities markets. These specifications also include a generic part which will be applicable for our Derivatives markets. The specifications were published on 22 May and feedback received so far has been very positive.

We are leveraging on the proven Wombat Exchange Platform (WEP) to disseminate our Market Data with an emphasis on:

- Ultra low latency
- Availability
- Usability
- Content and added value features.

The WEP is underpinned by three key components: the Market Data Server (MDS), the Retransmission Server (RTS) and the Refresh Server (RFS) - see diagram on final page.

- The MDS is the key data delivery component, providing real-time, ultra low latency Market Data via dual multicast lines. It allows for the easy creation and distribution of different Market Data product sets over dedicated multicast channels.
- The RTS provides a retransmission facility to service clients who have experienced gaps in the real-time market feed. It caches the state and depth of the market and is able to send a retransmission of specific data on request.
- The RFS provides a refresh (or snapshot) of the current market state. Again, caching the state and depth of the market, it is able to send these refreshes on request.

Looking to the future, WEP will also offer in 2009 innovative bandwidth management features:

- Optional compression of the market data (utilising FAST) will significantly reduce bandwidth requirements for those who wish to.
- Dynamic bandwidth control will allow for the real-time reallocation of bandwidth between multicast channels which are experiencing over- or under-utilisation.

The Market Data from all NYSE Euronext markets will be available via the SFTI network by the end of SFTI rollout plan and progressively via the WEP feed in accordance with the Universal Trading Platform Programme migration schedule.

The WEP rollout will commence in 2008 with European Equities. In order to assist you in your European Equities Market Data migration, several deliverables are due very shortly:

- A migration guide which will comprise mapping documents for existing legacy feeds as well as processing guidelines.
- Sets of canned data which will be delivered as and when each new WEP version is released from development and unit testing.
- A VPN External User Acceptance (EUA) test feed, to allow you to develop to the feed ahead of delivery of your SFTI circuits.

Finally, as mentioned in our previous issue, work has been ongoing on the Derivatives front. We are about to complete specific Derivatives Market Data customer specifications, which could be used in a first instance where WEP interfaces with the Connect™ trading hosts. This would give Liffe customers the option to receive their Market Data via multicast over SFTI and segregated from Order Traffic, ahead of the actual migration to UTP.

We will keep you informed of this initiative in the coming weeks.

Patrick Lastennet, Director, TDS (Technology Delivery Support) – NYSE Euronext Data Solutions
Stephen Morrow, Managing Director, Exchange Solutions – NYSE Euronext Advanced Trading Solutions

Universal Trading Platform client road shows FAQ

PART I: SFTI for Connectivity services in Europe

SFTI, Secure Financial Transaction Infrastructure, is an NYSE Euronext owned and operated network service available to the global financial community. SFTI Europe access centres are available in the following key cities: Paris, London, Amsterdam, Brussels & Lisbon. Please see Universal Trading Platform News 02 for a detailed presentation of the SFTI network, its benefits for customers and its various connectivity models.

When will SFTI be available in Europe?

The network backbone has been built and is currently available. Liffe members are already being connected and Euronext members will be connected by September 2008 in concert with the UTP rollout plan. NYSE Euronext Data Solutions products are also available. Euronext members have been encouraged to sign up for the service as from June 2008.

Are new contracts required for SFTI?

Yes, members will be required to execute new connectivity contract agreements for the SFTI service.

What will SFTI cost?

Member pricing will vary based on the connectivity access option that the member selects. The 5 connectivity models are described in Universal Trading Platform News 02. Members that opt to use an Extranet Service Provider (ESP) or Application Service Provider (ASP) will be subject to the respective provider rates and fees.

How long will it take to be connected? Is there an uptime SLA available to members?

Members that select the SFTI Managed Connection (SMC) or SFTI Direct Managed (SDC) access method will typically be connected to SFTI within 2 – 3 weeks of the first mile regional loop being installed and tested. The regional loop may require between 90 - 120 business days depending on carrier availability at the member location. ASP or ESP members will typically be connected within 2 weeks following coordination with the ASP or ESP and subject to scheduling. There is no uptime SLA available for members. Members are provided with dedicated bandwidth with no over-subscription on the backbone network. This mitigates the issue of contention through the backbone.

What types of security controls are in place on SFTI?

We maintain the integrity of the overall SFTI environment through the use of data link, route and packet security filtering mechanisms. **Although our security measures are not intended to replace member security mechanisms**, SFTI has instituted the following mechanisms that protect the environment:

- **Filtering** ensures that communication between a member connection and an approved SFTI Europe service is allowed, with all other communications blocked. This prevents a member from connecting with another member.
- **Policers** prevent denial of service attacks against SFTI Europe. Policers act as bandwidth rate limiters on all allowed protocols.
- **Route Policies** allow members to only see approved destination networks.
- **Encryption:** For members utilising dynamic BGP routing, SFTI Europe offers support for MD5 Header Encryption between BGP Peers, which is used to validate the source of routing updates.

Once the service is enabled whom do we call in the event of any network incidents?

Liffe Market Services and Euronext Help Desk organizations will serve as the initial point of contact for all SFTI EU application or connectivity incident requests. In cases where the NYSE Euronext Operations unit discovers problems first, they will contact members

directly. For technical issues, Liffe Market Services and Euronext Help Desk will contact SFTI Operations to respond to the incident.

What does the SFTI Provisioning process involve?

The Provisioning manager will schedule a Customer Technical Implementation Meeting (CTI) with the member. The purpose of a CTI is to establish a detailed plan and schedule for delivering the service.

Will I be able to get market data from venues other than NYSE Euronext using SFTI?

Yes, it will probably be possible to source other market data using SFTI in Europe. However no timelines or possible venues have been defined as yet.

Will the EMDS QV-feed be available via SFTI?

We are investigating the possibilities, but the outcome of this is not to be expected before Q3/08.

Are you sure I cannot fit Cash and Derivatives into 100Mb? Do the current rates suggest this?

The capacity figures published in the SFTI menu correspond to end of year (2008) projections and reflect the maximum capacity of the trading engines by the end of 2008. We forecast a total of 60Mb for Derivatives and 40Mb for Cash. We cannot guarantee, however, that in times of very volatile markets 100Mb will be sufficient to carry both Cash and Derivatives data without saturation.

If compression is available, surely I can fit both Cash and Derivatives in 100Mb?

At this stage no benchmarks have been performed to ascertain the degree of bandwidth saving if FAST compression is applied to the UTP MD feed. We would expect those benchmarks to be available before the end of the year, and will update the SFTI "menu" accordingly.

Can I order one circuit per site and handle myself the failover from site to site?

Yes. You can order one circuit per site, as long as you handle failover from site to site yourself. This circuit connects the site to both the primary and disaster recovery data centres. However, for technical reasons, Liffe CONNECT™ currently requires 2 circuits for each live site.

In case of circuit failure do you re-route the traffic from the failed circuit to the live circuit?

We are currently discussing whether this functionality will be made available on the SFTI-Europe network or not. In any case the remaining live circuit will continue to supply the full set of data.

Who will be my contact for circuit ordering and follow-up?

Until further notice, clients should use the existing technical support contacts. Procedures are being defined / reviewed to ensure optimum follow-up on orders.

Universal Trading Platform client road shows FAQ (contd)

PART II: Market Data

General

What is the Universal Trading Platform Market Data feed?

It is an ultra performance multicast market data feed which will gradually provide, throughout the UTP Programme, all of the NYSE Euronext market data, both Equities (Cash) and Derivatives, for both the European and US markets. The feed is powered by Wombat technology: the Wombat Exchange Platform (WEP). It will offer significant added value in terms of usability, refreshing order book and static data and retransmission via unicast. There will be no compromises on performance, with extremely low latency.

When will other NYSE Euronext Equities Cash markets be available in the UTP MD feed?

Other markets will follow the UTP migration schedule, so we expect Arca to be available by Q3 2009 and NYSE by Q4 2009.

Will I be able to get venues other than NYSE Euronext from the UTP Market Data feed?

No, the UTP MD feed will only carry data from NYSE Euronext markets.

Will the new Openbook Ultra be available via this feed?

Yes, Openbook Ultra will be available via the UTP MD feed. In fact the order book message of the UTP MD feed for Equities is based on the newly launched Openbook Ultra format.

How granular are you going to be in the entitlements?

Granularity will be limited as we will not offer low bandwidth solutions. For example it will not be possible to just subscribe to "Amsterdam equities". Clients who only need a relatively small subset of the data might consider using an ESP/ASP. The full list of Multicast addresses and services for Euronext data will be published very shortly.

Will you be supporting FAST compression?

Yes, FAST compression will be optional. However for the launch of the feed with Euronext data we will start with uncompressed data only.

Do I need to have a Wombat Feed Handler to decode the feed?

No, you do not need to decode the UTP MD feed via a Wombat Feed Handler. The feed protocol is not proprietary to Wombat and is an open message based feed (i.e. no API). You can either develop your own FH or use any software vendor.

Will Wombat manage the support of the feed?

No, development support to the UTP MD feed will be handled by the usual Exchange contact points.

Will Wombat provide consultancy services?

Wombat will provide its usual range of services for the UTP MD feed. If you wish to enquire further, you can contact: Rory Arneil - Rarneil@nyx.com - +44 2073 792959.

Specifications

Do the specifications just published apply to all markets?

The specifications just published consist of a Generic Customer Specification (Arca, Arca options, Euronext, Liffe and NYSE) and of specific Equities Appendices (Euronext, Arca and NYSE).

Universal Trading Platform Market Data vs EMF

What about EMF that you have just launched?

We will maintain EMF until the end of 2009. During this time EMF will be enhanced and upgraded to accommodate Euronext initiatives (ie Smartpool, New Warrants model, etc). The EMF feed will only remain available via the MMBA circuits.

Are there any functional/content differences between the UTP Market Data feed and other Euronext feeds (EMF/FIM/TOPCAC/EMDS)?

The UTP MD feed will deliver essentially the same data as the current Euronext feeds. However as instruments migrate from NSC to UTP, some fields will become obsolete. They would also become obsolete on the current feeds. We will publish a migration guide giving details of these fields very shortly.

Will the UTP MD feed be available via MMBA lines?

For Cash Euronext, it will be. However no other markets will be available via the MMBA lines - whether via EMF or UTP MD feed.

Derivatives

When will the Derivatives specifications be available?

As we are currently still planning and working on the design of UTP for Derivatives, there are no market data specifications available but we hope to be able to publish these specifications later this year.

Will you get rid of the Connect™ gateways? How much notice will we receive?

Connect™ will be around until 2010 with gateways on site. We will give members sufficient notice of our future plans and how UTP will work going forward.

When will you communicate further about derivatives?

We plan to have a briefing in Sept/Oct 08.

I am a new Derivatives customer. Should I start developing to Connect™ or should I wait for the new feed?

Connect™ will be available until 2010 so you should develop to Liffe Connect™. Derivatives will not go onto UTP until 2010 and details of whether we run in parallel for a period of time need to be confirmed.

Can I use my Connect™ 100Mb to receive the UTP MD feed?

You will be able to use these circuits to migrate from Connect™ to UTP and receive Liffe data via the UTP MD feed. Although actual bandwidth usage may suggest things might fit at this moment, our forecasts show that 100Mb is insufficient bandwidth to receive both Liffe data via Connect™ and Euronext Cash markets data via UTP MD uncompressed. Similarly 100Mb would be insufficient to receive both Liffe and Euronext data via UTP MD feed uncompressed. As FAST compression will not be available on a short notice, this should not be taken into account when investigating possibilities.

Can I upgrade my Connect™ 100Mb to 1Ggb to receive both Liffe and Euronext data?

Your Liffe Connect™ lines are made up of a 100Mbs Verizon circuit and a Colt 100Mbs circuit. Both are upgradeable to 1Gigs. Expected timelines for this are being discussed with these providers.

Universal Trading Platform client road shows FAQ (contd)

PART II: Market Data (contd)

Euronext Cash Migration

When will the UTP MD feed go live?

We will be live in September this year. We will publish the exact dates in the very near future.

When will test data be available?

We will make "canned data" available prior to the EUA test feed being available. We will communicate the target date within the next couple of weeks.

Are you going to publish a migration guide?

Yes we will publish a migration guide very shortly. It will contain a data mapping reference between the current feeds and UTP MD feed. It will also contain some processing guidelines, in particular where different processing is necessary due to different behaviour of the UTP trading engine compared to NSC.

If I don't have an MMBA circuit, how can I start accessing the test environment before September?

You will be able to access the EUA platform from Day 1 via an internet VPN service.

Will I have to do conformance and certification?

We will not have specific certification of the UTP MD feed as part of the Euronext migration to UTP. However we reserve the right to change our approach for other migrations and depending on further client consultation.

Is there a limit on the amount of data I can request for retransmission?

Yes there will be a limit on the number of packets you can retrieve in TCP/IP. The retransmission should be used scarcely and only in the case of line arbitrage not being successful in retrieving a missed packet. We are however envisaging providing a non restrictive configuration for trades only which will allow you to retrieve all of the day's trades.

Will I have to redevelop when Arca Equities and NYSE data become available?

You might have to adjust your UTP MD feed handler ahead of each of these migrations to accommodate for specific messages and value ranges. We will issue updated versions of the specifications closer to the time of each of those migrations.

Extranet Service Providers and Application Service Provider

I am an ESP/ASP and would like to provide your market data. What do I need to do?

You have to sign the Euronext Market Data Agreement.

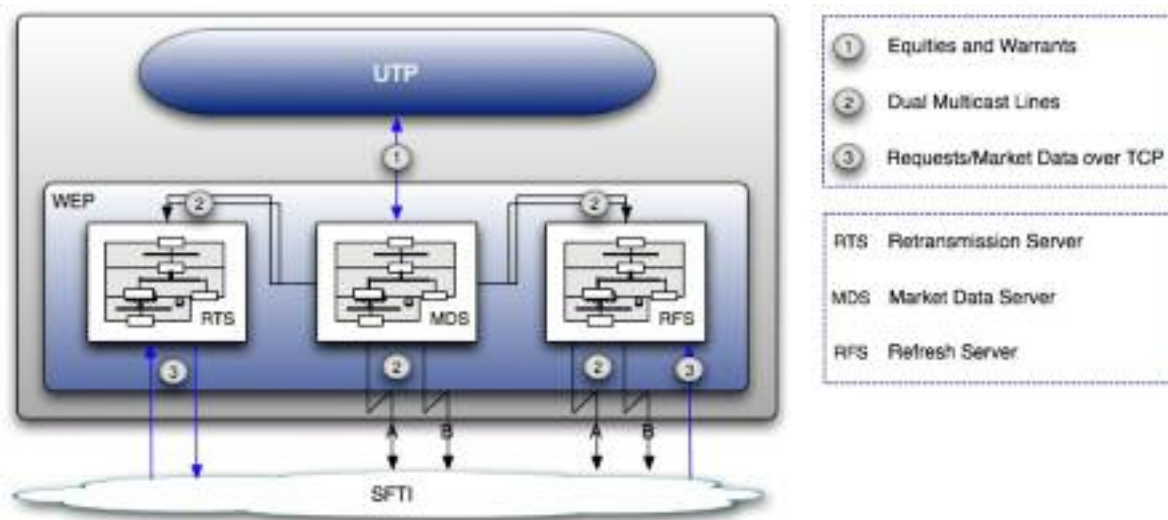
I am an Application Service Provider (ASP)/ Independent Service Vendor (ISV) and am about to complete EMF development. Am I right in assuming I don't need to develop immediately to UTP MD feed?

Not necessarily, some of your customers might want to get the UTP MD feed for Euronext from Day 1.

Co-location

If I am a co-location customer, do I also develop to this feed?

Yes, if you are a Euronext co-lo customer you will eventually have to develop to the UTP MD feed as EMF will only be maintained until end of 2009.



For more details and information on the Universal Trading Platform Programme, please contact your local account manager.

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