AFTERNOON WORKSHOPS

01 MTS deep dive
02 CSD deep dive
03 Data Centre and Optiq® migration deep dive
Data Centre migration
Migrating Euronext Core Data Centre from Basildon to Aruba’s facility in Bergamo

A suitable location for Euronext’s Core Data Centre

**Rationale**

- Post-Brexit, Euronext wants to operate and host its exchanges though a Data Centre located within the European Union
- Direct management of in-sources colocation and client connectivity ensures autonomy and independence
- Higher efficiencies for Euronext and its clients

**Why Aruba?**

- Tier-IV compliant Data Centre with high level of safety and resilience
- Already the secondary Data Centre of Borsa Italiana
- Shift to an environmental friendly Data Centre

<table>
<thead>
<tr>
<th>Tier</th>
<th>Availability</th>
<th>Redundancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier-I</td>
<td>99.671% availability</td>
<td>No redundancy</td>
</tr>
<tr>
<td>Tier-II</td>
<td>99.749% availability</td>
<td>Some redundancy in power and cooling</td>
</tr>
<tr>
<td>Tier-III</td>
<td>99.982% availability</td>
<td>Fault tolerant (N+1) Able to sustain 72 hours outage</td>
</tr>
<tr>
<td>Tier-IV</td>
<td>99.995% availability</td>
<td>Fully redundant (2N+1) Able to sustain 96 hours outage</td>
</tr>
</tbody>
</table>

99.995% availability
Fully redundant (2N+1)
Able to sustain 96 hours outage
A reinforced leading position in cash trading

25% of European equity trading flows made on Euronext markets

Post-migration ADV repartition in Europe

- LSEG / €5.5bn
- MTF / €9.9bn
- Nasdaq Nordics / €3.5bn
- Xetra / €5.0bn
- Wiener Börse / €129m
- BME / €1.0bn
- SIX / €3.0bn
- Euronext / €7.9bn
- Borsa Italiana / €2.6bn

ADV year to date as of end of October 2021 – Continuous trading and auctions volumes
Source: Individual exchange data
### Revenue models adapted to market’s demands

Euronext colocation and connectivity business offer is based on clients type regarding their appetite to execution speed, ensuring all clients are fairly managed.

<table>
<thead>
<tr>
<th>Latency</th>
<th>Investment costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colocated clients</td>
<td>Wireless network</td>
</tr>
<tr>
<td>Non-Colocated clients</td>
<td>Optic Fiber Network</td>
</tr>
</tbody>
</table>

+++ Latency +

+++ Investment costs +
Moving a step further with a new directly managed colocation offer

Euronext is unlocking a **new source of revenue** taking advantage on the Borsa Italiana knowledge, enabling Euronext to directly managed its colocation offer.

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**HOSTING**

A **physical cabinet** on a contract term **within the colocation room space** with access up to **18 kW of peak power**

**CONNECTIVITY**

Links (basically cables) that connect e.g. one cabinet to another, to the matching engine and to the external network.

**SERVICES**

Additional services (one-off, upon request, upgrade/downgrade) **managed by the clients in relation with support teams**
Empowering sustainable growth with the new Core Data Centre

Euronext new Core Data Centre is a big step in achieving our ESG goals

Euronext strategy for IT equipment, and its usage, optimizes the demand for power and cooling in the Data Centre

1. We contribute to reduce Euronext Global Carbon Footprint

2. We help our Clients to lower their environmental impact

100% renewables Datacentre

2 ISO certifications and 1 guarantee of origin ensure that the energy comes 100% from renewable sources, is used responsibly and optimises energy resources

ISO 14001
Certified environmental management

ISO 50001
Energy management system

Guarantee
Certificate
Energy from renewable sources

Aruba S.p.A.

Through the cancellation of the Guarantees of Origin (GO), Duferco Energia certifies that all the energy supplied to the customer, as provided by the 2019-2020 contract, is exclusively generated by Renewable Sources.

Choosing 100% Green Energy means concretely undertaking to reduce the environmental impact and contributing to the protection of our planet.

Duferco Energia S.p.A.
Core Data Centre migration timeline

- **Jun-2021**: Build start
- **Nov-2021**: Customer Colocation installation
- **Jan-2022**: Start of pre-production technical test
- **Jun-2022**: Production Go-Live
Borsa Italiana markets’ Optiq® migration
Optiq®, a proven European state-of-art trading platform

- **Enhanced performance**
  - Cutting-edge technology to ensure high reliability
  - Significantly increased throughput and latency performance with minimal volatility
  - Highly enhanced efficiency through improved connectivity and protocols, and an optimized messaging model

- **High-quality service**
  - Architecture allowing fast release cycles, with shorter time-to-market delivery capacities
  - Integration of the latest technology, enabling innovation

- **Maximum flexibility**
  - Allowing customers to implement functionalities that fit their needs
  - Harmonized cash and derivatives messaging model enabling pooling of resources during high volume periods
  - Harmonized cash and derivatives tooling for technical and business operations allowing for better efficiency and reliability

- **Proven technology**
  - Optiq® already hosts 6 exchanges and has recent experiences in migrations (e.g., Oslo Børs and Euronext Dublin) and Italy will be the 7th (subject to regulatory approval)
  - Allow for enhanced investment capabilities as one development can benefit many markets wherever relevant
  - Unlimited scalability, asset-classes agnostic

- **15μs**
  - Best-in-class latency

- **99.99%**
  - Stability on equities
Benefits from the previous Optiq® migration

Euronext Dublin

- 53 Equity securities successfully migrated to Optiq®
- 20 trading members successfully migrated to Optiq®
- Implementation of Supplementary Liquidity Programme
  - x2 market members and increased market share on dual listed stocks
  - Increased cash trading market share post Optiq migration

Olso Børs

- 276 equity securities, 4 ETFs securities and 2,400 derivatives and fixed income products successfully migrated to Optiq®
- 73 trading members successfully migrated to Optiq®
- Implementation of Supplementary Liquidity Programme
  - +22.5% active trading members
  - Strong local footprint retained
Several expected benefits for Borsa Italiana cash equities and derivatives markets

<table>
<thead>
<tr>
<th>Technology and Function</th>
<th>Functional richness</th>
<th>Expansion and cross-fertilization</th>
<th>Mature set of digital portal functionalities</th>
<th>Full compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optiq® will be updated to reflect Borsa Italiana specific features while improving the level of services</td>
<td>Specific complementarity features and services already available on Optiq®</td>
<td>Euronext enlarged member base as well as the modulatory and flexibility of Optiq® to create new products and services</td>
<td>Enabling both operational efficiency and customer experience improvement</td>
<td>Full compliance with all relevant local and European laws and regulations maintained</td>
</tr>
</tbody>
</table>

The migration of Italian cash equities and derivatives markets to a single liquidity pool, enabled by harmonized rules books and empowered by the single technology Optiq® will **enhance the Italian equities and derivatives market while reinforcing their viability**
Borsa Italiana Optiq® migration expected timeline

- **Sept-2021**: Start of Features’ Development Phases
- **Q4-2022**: First Production Delivery (Lot 1 & 2)
- **H1-2023**: Final Production Delivery (Lot 3 & 4)
- **Oct-2023**: End of the TSA Transition Service Agreement

Subject to regulatory approvals
Q&A

EURONEXT
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