

# Lucera Use Cases

Connect and Compute

Date: 14 August 2015

Version: 1.0

**LUCERA**  
The Future of Financial Infrastructure

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## VERSION HISTORY

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### Document Version History

Version	Date	Author Email	Description
<b>Philip Preston</b>	Friday, 14 August 2015	<a href="mailto:ppreston@lucera.com">ppreston@lucera.com</a>	Initial use cases

## USE CASE 1: CLIENT CONNECTIVITY

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Operating in a global, electronic marketplace requires financial firms to have the ability to connect to a large number of counter-parties, in order to use and deliver trading services. Client Connectivity platforms are an essential service that enable a broker's clients to receive market data and send order flow, typically over FIX format. Large brokers require a networking infrastructure that has the reach and flexibility to underpin their client connectivity platform, to be able to access the order flow to drive their business.

### Challenges

In running the networking platform that supports the FIX client connectivity layer, broker firms face a number of challenges:

- ▶ **Complexity** - the network is an intricate collection of extranet providers, cross connects and internet services, creating a complex and costly infrastructure to maintain and manage.
- ▶ **Bandwidth Cost** - estimating the bandwidth required for on-boarding new clients is impossible, and leads to over-estimating, over-provisioning and over-paying.
- ▶ **Lost Revenue** - on-boarding times for provisioning new connections to clients are long, which equates to lost revenue every day per client, for every day of delay.
- ▶ **Vendor Lock In** - contracts for connecting to new clients are long term, with no flexibility to tear down if an on-boarded connection is no longer required.

### Solution

Lucera has been able to help a tier 1 broker who was suffering from these challenges in their eFX trading group. Lucera migrated this broker from their legacy client connectivity model to the Lucera Connect™ platform over the course of just 90 days, by providing solutions to the challenges the broker was facing, including:

- ▶ **Simplified Networking:** The broker cross-connected onto the Lucera Connect platform, with all of the brokers' client connections delivered as application services over the same cross connect, including internet clients.
- ▶ **No Bandwidth Charges** - the broker began paying a flat fee per application flow to its clients, regardless of the bandwidth used.
- ▶ **Fast Provisioning** - using the Lucera Connect™ Software Defined Network, 96% clients were on-boarded within 72 hours in the first three months.
- ▶ **Month to Month** - connections were charged on a month-to-month basis, giving the broker maximum flexibility.

### Benefits

The Lucera platform has the following benefits for the broker's client's connectivity platforms:

- ▶ Reduction in the cost of client connectivity networks, and increases to bottom line profits;
- ▶ Additional revenue per client, from faster time to market for client on-boarding;

- ▶ Flexibility in scaling up and tearing down connections, in line with business requirements; and
- ▶ Access to an existing and extensive on-net community.

## USE CASE 2: NEW BUSINESS SPIN-UP

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Trading desks within financial services organisations are continually looking for new revenue-generating opportunities, as they aim to diversify and seek an edge in competitive markets. Standing up a new strategies or entering into new asset classes in seeking this new revenue, means building out new infrastructure quickly, before the opportunity is missed.

### Challenges

Customers face a number of challenges when trying to embark on a new venture, particularly requirements to build out new physical infrastructure, including:

- ▶ **Cost to entry** - the costs of building new environments for trading include high up front costs, in order to deliver the networking and compute resources needed to compete.
- ▶ **Pay for failures** - with no guarantees of success, clients are faced with the risk of having to stop unsuccessful business initiatives, but having to continue to pay for the infrastructure.
- ▶ **Time to market** - the time from deciding to execute on a new business strategy to being live can be nine months or greater, at which point the opportunity may be gone or greatly diluted.
- ▶ **Poor Performance** - in trying to find a flexible, scalable alternative, clients are forced to look at virtualised hardware based solutions, outside of the financial data centres, which do not meet the performance profile needed for trading.

### Solution

Lucera has been able to help a customer enter into the FX asset class through their use of the Lucera Compute™ platform. Using the Lucera Compute™ platform, the customer instantly spun up the initial footprint to meet their day one requirements, and immediately begin to roll out their platform. The benefits to the client continue to accrue:

- ▶ **No up front cost** - there are no installation costs, removing any up front costs as barrier to entry.
- ▶ **Month-to-Month** - without long-term contracts, clients are given the flexibility to spin up and tear down compute nodes as required , only paying for what's needed, as it's needed. With re-sizeable compute packages, platforms change as quickly as requirement changes.
- ▶ **Provisioned Instantly** - provisioning is handled via the web-based Lucera™ Portal, with compute nodes being provisioned to the platform instantly.
- ▶ **Bare Metal Performance** - Lucera Compute™ uses container technology rather than hypervisor technologies, to securely isolate dedicated resources for each compute node, giving bare metal performance suitable for trading.

## USE CASE 3: SERVICE PROVIDERS

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The Financial Services industry relies on many of the rich and diverse service providers who have developed business critical systems supporting and enhancing trading businesses. More and more of these providers, including data vendors, FIX services or even exchanges, are moving to “as a service” models, enabling clients to onboard and expand quickly.

### Challenges

“As a service” models for providers create many benefits for their client base, giving the flexibility to offload management of critical infrastructure, reduce their costs, and transfer scaling issues onto the provider. In offering the services in this way, service providers then need to tackle a number of challenges in supporting a suitable infrastructure:

- ▶ **Location and Community** - for delivering business critical services to trading firms, it’s essential to be in the core financial data centres with the ability to access the community in those financial epicentres, carrying up-front costs for rack space and networking.
- ▶ **Expanding and Contracting client base** - with “as a service” delivery, clients can come and go, which presents a challenge to service providers in scaling their server footprint in line with client demand. This must be balanced with not initially over-provisioning, for fear of the client base contracting.
- ▶ **Poor Performance** - services for trading operations often require a performance level not achievable with virtualised hardware solutions, typical to common IAAS / cloud platforms.

### Solution

Lucera have been able to help an exchange venue tackle these challenges through a combination of the Lucera Compute™ service, delivering on demand compute to power matching engines, order entry gateways and market data publishers, and with Lucera Connect™ providing the means through which participants can connect:

- ▶ **Key Financial Locations** - the Lucera Compute™ platform is located at the epicentres of the trading world in Equinix data centres at NY4 (New York), LD4 (London) and CH2 (Chicago), with Lucera Connect™ enabling access to the communities situated there.
- ▶ **Month to Month** - Pay on a month-to-month basis, with the flexibility to spin up and tear down compute nodes and connections as required - only paying for what’s needed as new clients come and go.
- ▶ **Bare Metal Performance** - Lucera Compute™ uses container technology rather than virtualised hardware hypervisor technologies, to securely isolate dedicated resources for each compute node, giving bare metal performance suitable for running business critical infrastructure.

### Benefits

Lucera Compute™ has the following benefits for service providers:

- ▶ An on-demand platform built out directly in the key financial services data centres, allowing service providers to run where their customers require;
- ▶ Flexibility to scale platforms up and down, enabling service providers to tailor costs in line with client revenues; and
- ▶ Bare metal performance levels that a service provider needs, without the cost of bare metal infrastructure.

## USE CASE 4: ADDITIONAL ENVIRONMENTS

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Financial services organizations often have a need for a number of different platform environments supporting their business needs, including backtesting, research, development and disaster recovery.

### Challenges

With the need to provide multiple environments to satisfy a number of different use cases, IT face a number of challenges in providing infrastructure to meet these needs, forcing administrators to look to cloud based services.

- ▶ **Indeterministic Use** - outside of production environments can be used sporadically, ranging from relatively frequently for development, to never for disaster recovery - yet represent a fixed cost in terms of capital expenditure and management, regardless of usage.
- ▶ **Suitable Performance** - in looking to typical cloud-based services, administrators can find the flexibility they need but not the performance, due to use of virtualised hardware based offerings.
- ▶ **Security** - with cloud-based services, administrators hit concerns with internal security teams in regards to how to secure critical data in multi tenant, cloud environments.

### Solution

Lucera has worked with clients to deliver dynamic, on-demand resources through use of Lucera Compute™ for a high performance compute stack, and Lucera Connect™ to provide access to external services.

- ▶ **Month-to-Month** - Pay on a month-to-month basis with no up front cost, allowing for connectivity and compute to be spun up and torn down on demand.
- ▶ **Bare Metal Performance** - Lucera Compute™ uses container technology rather than virtualised hardware hypervisor technologies, to securely isolate dedicated resources for each compute node, giving bare metal performance suitable for running business critical infrastructure
- ▶ **EAL4+ Secure** - The “Zone” container technology that underpins the multi tenant capability in Lucera Compute™ is EAL4+ certified and is trusted in the most demanding sectors of government and military.

### Benefits

The benefits of the Lucera™ Platform to customers who wish to build out additional environments include:

- ▶ Significantly reduced cost compared with internal build;

- ▶ On-demand infrastructure with the ability to spin up or shut down directly in the hands of users; and
- ▶ Secure environment only available to financial services firms.