

Trading platforms

Latency Analytics

Achieving and maintaining low latency in today's complex and highly sensitive trading environments is a constant challenge. Understanding that latency is not a single number but a distribution of ranges is vital for gaining control. Sumerian's Latency Analytics answers this need, providing accurate insight into end-to-end latency and its distribution across trading systems – enabling you to target optimisation improvements and make smarter decisions to drive your trading competitiveness.

The challenge

Whether you are faced with an existing latency issue or simply looking to improve your latency management processes, there are a number of challenges that can make it difficult to achieve progress:

- **Limited view of the big picture** - while many tools on the market provide monitoring of point latency, none can provide the insight to understand full end-to-end latency of trades/quotes and how different application components are contributing to it.
- **Multiple types of latency** – the many potential sources of latency – from the network, protocol, operating systems and applications – makes it difficult to know where attention should be targeted.
- **Lack of connection to business impact** – poor visibility of the relationship between quote/trade volumes and end-to-end latency makes it impossible to predict what will happen to latency if business volumes change.

How our service works

Answering these challenges, Sumerian takes a unique approach to latency reduction and its ongoing optimisation. Using our highly powerful analytics platform, we capture, model and analyse vast quantities of data generated by your trading systems, revealing the holistic, end-to-end latency and how this varies with both trade volumes and mix.

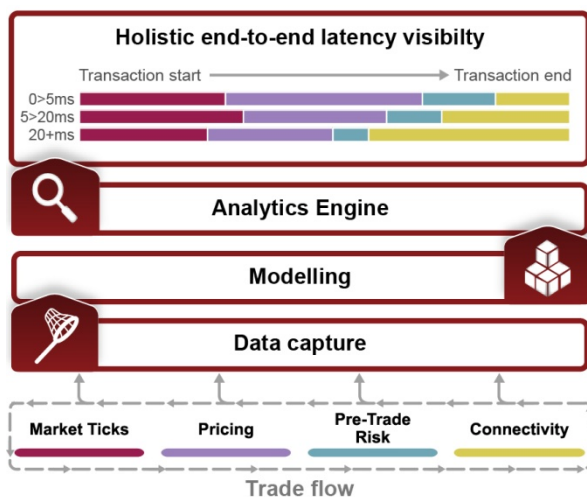


Fig.1 – Sumerian Latency Analytics methodology

- **Holistic latency visibility for targeted improvements** – supplies actionable insight to understand where latency is impacting and what is causing it
- **Ongoing optimisation to keep latency low** – fast, repeatable analysis to track and monitor your latency position for continual, proactive improvements
- **Improves IT-business alignment and communication** – with quantified, business focused evidence to demonstrate the effectiveness of your low latency strategy

By determining the inter-relationships between underlying system components, trading performance and latency, our service supplies clear understanding of per-component latency in business terms, enabling you to target action and investment to the right places.

We use an explicitly statistical approach to determine the holistic distribution of latency across trade flows, calculating:

- The end-to-end latency of every quote/ trade processed and how each component of the application stack contributes to end-to-end latency
- What percentage of trading transactions (quotes and trades) fall within any given latency band
- Which component(s) should be targeted for attention
- Quantifying whether changes made to your platform have resulted in improvements to your latency position

This advanced insight enables us to answer any number of questions surrounding your specific trading latency objectives, for example:

- *Where is latency most prevalent and what components are contributing the most to delay?*
- *Are there any differences in latencies between different trade types, currency pairs in FX, clients and venues?*
- *Is latency impacting our competitiveness and what actions/investment should we take to improve this?*

What you get

We deliver a hosted subscription-based analytics service, requiring minimal time from you and your team to get underway – delivering our analytics in as little as 6 weeks.

Fast, secure data cleansing and integration

Using our pragmatic data collection techniques, we capture granular data, covering a pre-selected time period, in its raw form from across your trading platform - verifying, cleansing and storing it securely in our world class data warehouse facilities. Typical data sources collected for trading latency analytics can include:

- **Application logs** – Tick database, FIX logs, bespoke application logs
- **Performance monitoring logs** – CA Unicenter, IBM Tivoli, BMC Patrol, Perfmon
- **Low latency monitoring logs** - Correlix, Corvil, Endace, SeaNet, TS-Associates
- **Network traffic logs** -Wireshark, IP SLA, Netflow



Application log data is translated into business level metrics such as number and types of quotes and trades. Performance monitoring logs supply us with information on the usage of the trading platform (CPU, memory, Disk IO, database transactions and so on).

Statistical modelling of end-to-end latency

Using our analytics platform, we build a baseline model of your trading system, examining the volumes of quotes and trades being processed. By applying an explicitly statistical approach, we connect and track every single quote, order and trade across your trading platform, determining the round trip latency. This enables you to understand what percentage of transactions fall within any given latency band, providing visibility of the all-important latency tail (greatest latency) – a valuable measurement of your trading competitiveness.

Pinpoints where latency is occurring

By mapping the latencies resident within each step of your trading system, we identify the relative and absolute contributions of latency at each component step of the trading flow. With the use of our Latency Distribution visualisations, we show you how each component is contributing to latency across each latency band,

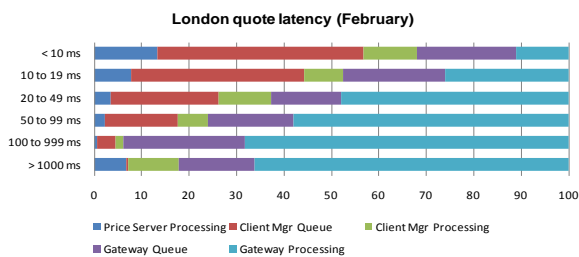


Fig.2 – Sumerian Latency Distribution visualisation showing the full ranges of latency across trading application components

Scenario modelling latency

The baseline model of your latency position offers a powerful platform for you to leverage and further capitalise on. Using sophisticated “what if?” scenario modelling, we can answer any number of questions around your low latency objectives. For example, by modelling the behaviour of your system, we can assess the risk, impact and cost of any rise in quote/trade volumes, architectural and infrastructure changes or adaptations to the trading mix – helping you to de-risk change and manage business growth effectively, answering questions such as:

- *What impact will a 40% increase in trade volumes have on latency, and where are bottlenecks likely to occur?*
- *How will a proposed co-location solution improve our latency?*
- *What is my latency long tail and how many quotes/trades are experiencing that latency?*

Once changes to your environment have been implemented, our analysis can be repeated to quantify the actual outcome and impact of the changes taken. This enables teams to categorically understand whether the adjustments made have been successful in reducing latency, and if not, guide further action to resolve.

Expert reporting – on demand, repeatable

Our analytics are presented to you using a variety of methods depending on your requirements, from a tailored, secure Web portal to regular reporting from our data scientists. Key to our reporting is clarity, ease of use and precision - so you can make fast decisions and drive proactive, positive improvements to your IT. Our service is very flexible and easy to re-align, we keep pace with your changing environment, adapting our analytics to meet your changing priorities.

The outcomes you can expect

Our services will enable your organisation to significantly advance your trading latency objectives and optimisation strategy – ensuring you deliver continually high levels of trading performance.

- **Holistic latency visibility for targeted improvements** – supplies you with the insight to understand the complete landscape of where latency is occurring and what is causing it.
- **Ongoing optimisation to remain competitive** – fast, repeatable analysis to track and monitor your latency position for continual, proactive improvements.
- **Improve IT-business alignment and communication** – with quantified, business focused evidence that demonstrates the effectiveness of your low latency strategy.
- **Predictive scenario modelling** – enabling you to determine in advance the impact of business, application or infrastructure changes.

Intelligent analytics, smarter decisions

Our Latency Analytics is just one of a suite we can apply to your trading systems. The Sumerian solution framework has a broad range of capabilities that may be applied to support a number of complex trading challenges. Additional analytics services we can provide for trading platforms include:

- Capacity Analytics
- Performance Analytics
- Batch Analytics
- Fill Rate Analytics
- Grid Analytics

More information

For further information on Sumerian or to arrange a demonstration of our services, contact us on 0141 229 7580, e-mail us at info@sumerian.com or visit our Web site at www.sumerian.com

