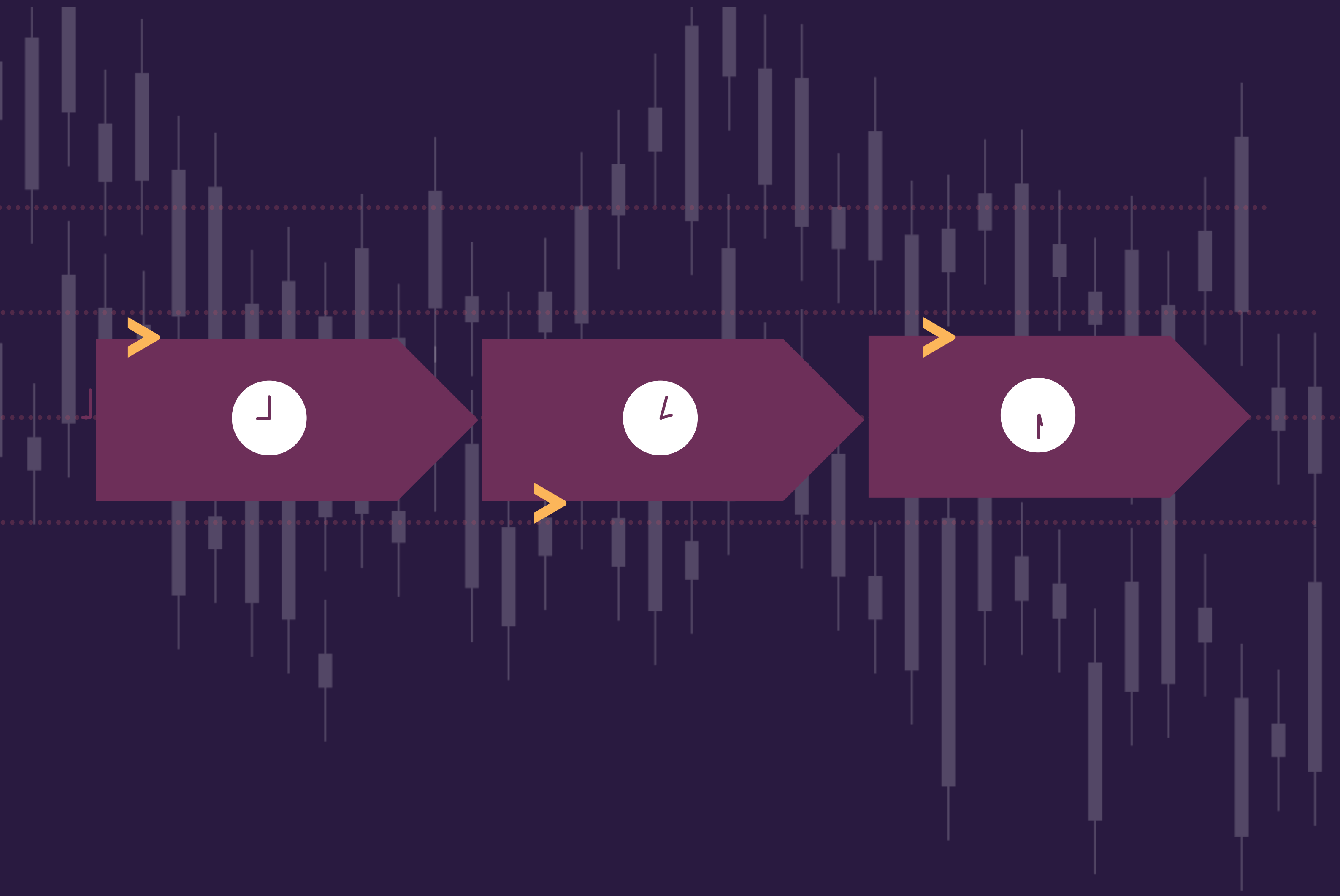


ATOTI FOR FRONT OFFICE

Redefining enterprise wide real-time risk hedging strategies

Unlock the power of on-the-fly consolidated analytics across
all your desks with multidimensional cross-asset risk and P&L.

ActiveViam

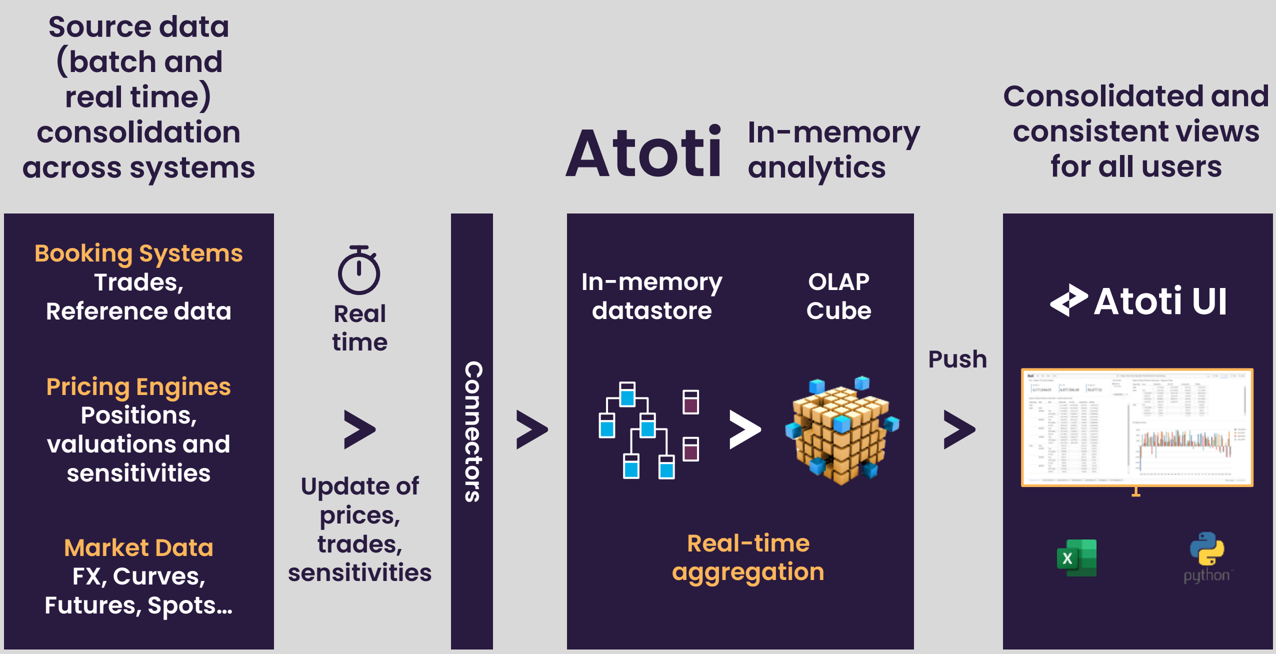
A day in the life of a front office

Know your start-of-day position

Atoti consumes cross-asset positions, valuations and sensitivities from your booking and risk engines in real time and aggregates them on the fly. It allows you to define customised aggregation rules so that you can look at your risk according to the way you trade and the market conventions for your desk.

Compare your start-of-day positions with the previous close and understand your starting point. Be confident that the pricing and booking systems have delivered everything needed. With Atoti it is easy to check that market discontinuities, such as corporate actions, have been applied correctly.

It's time to know your risks for certain.



Atoti connects multiple sources of trade, security, reference data and valuation engines.

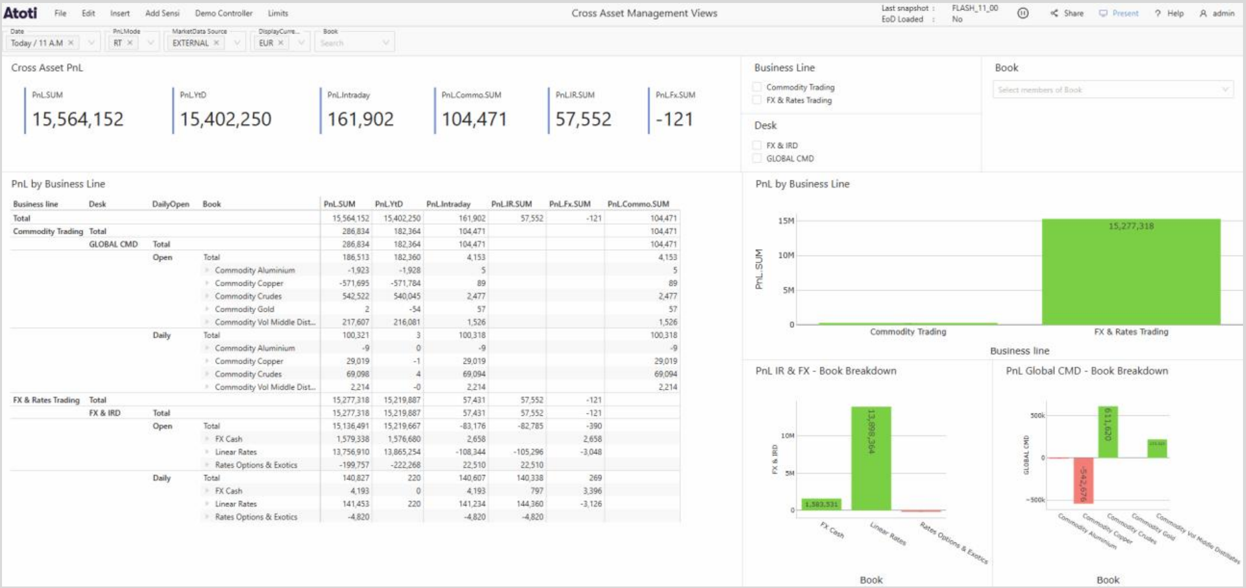
Aggregates on-the-fly in a cube, made available in dashboards with real-time notifications.

Real time analytics and limit monitoring

Atoti allows you to see aggregated risk, P&L and sensitivities across your organisation and asset classes. It also provides drill down to the most granular data such as trade, instrument or position level on the fly.

Atoti is great for reconciliation, lineage and data quality checks.

Everyone can see a consolidated view of the risks and positions



Slice, dice and rebucket as the market moves

It is not enough to aggregate, you need your data to react to market events and trade events both impacting your risk and P&L.

Atoti computes all impacted metrics on the fly and performs a Taylor approximation based on real-time trade updates; any attribute that is an input to the Taylor approximation including market rate, volatility, currency, maturity date, risk factor and so on. Other reference data used as classifications and hence driving slice/dice/filter functions such as, ratings and capitalisation, can also be real time drivers.

Don't worry. Atoti evaluates and recalibrates with markets in real time while you concentrate on your job.

Consolidate and monitor your books and desks from multiple drivers and sources.

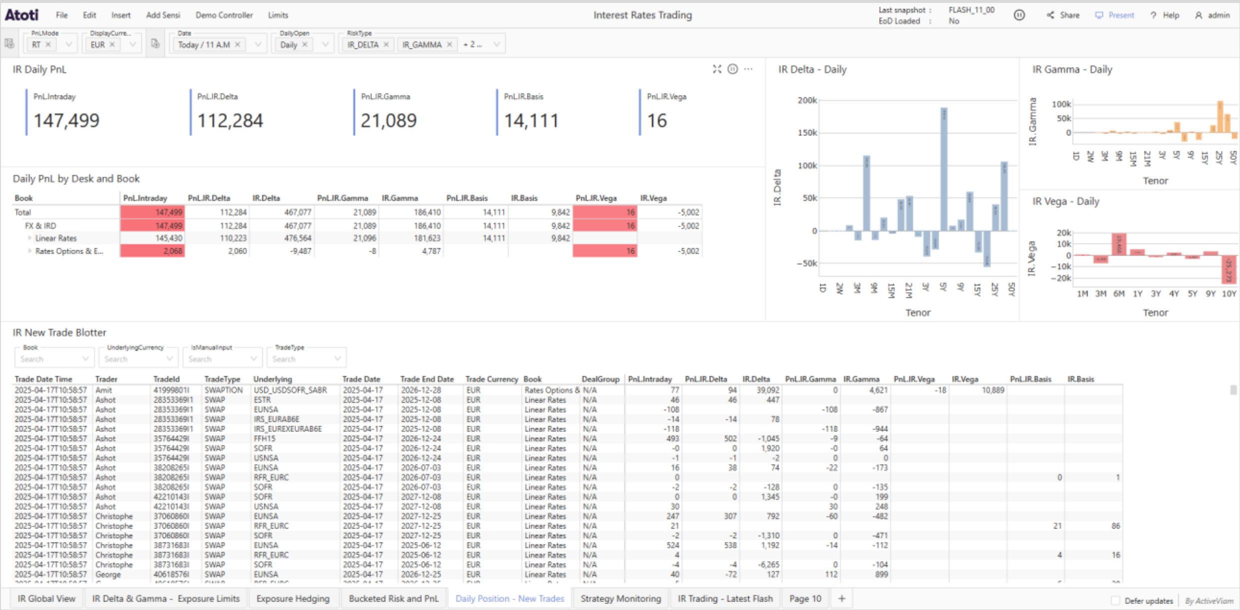
Rebucket your risk to optimize hedging strategies.

Define your own classifications and bucketing rules such as:

- For Rates reproject sensitivities to the part of the curve where you trade or where your limits are set. Combine EUR curves into a single line summary row and drill down to the detail when needed.
- Equities can be grouped by capitalisation, liquidity and volatility according to user-defined bucketing rules. Redefine those groups on the fly. Filter and group by sector, geography and any other attribute or combination.
- Similarly credit securities can be grouped by rating, liquidity and risk levels and FX can be grouped by geography and liquidity and any other attribute or combination.

Atoti UI is designed to access the results with predefined and reconfigurable dashboards in Active UI. They are a starting point for more interactive analytics.

Use intuitive dashboards to navigate the data



Atoti UI with P&L and Risk summary with a real-time trade blotter showing new trading activity.

Atoti enables you to view risk, exposures and P&L by booking hierarchy, book, desk, currency, sensitivities, other risk factors, asset class, or any combination of those and more.

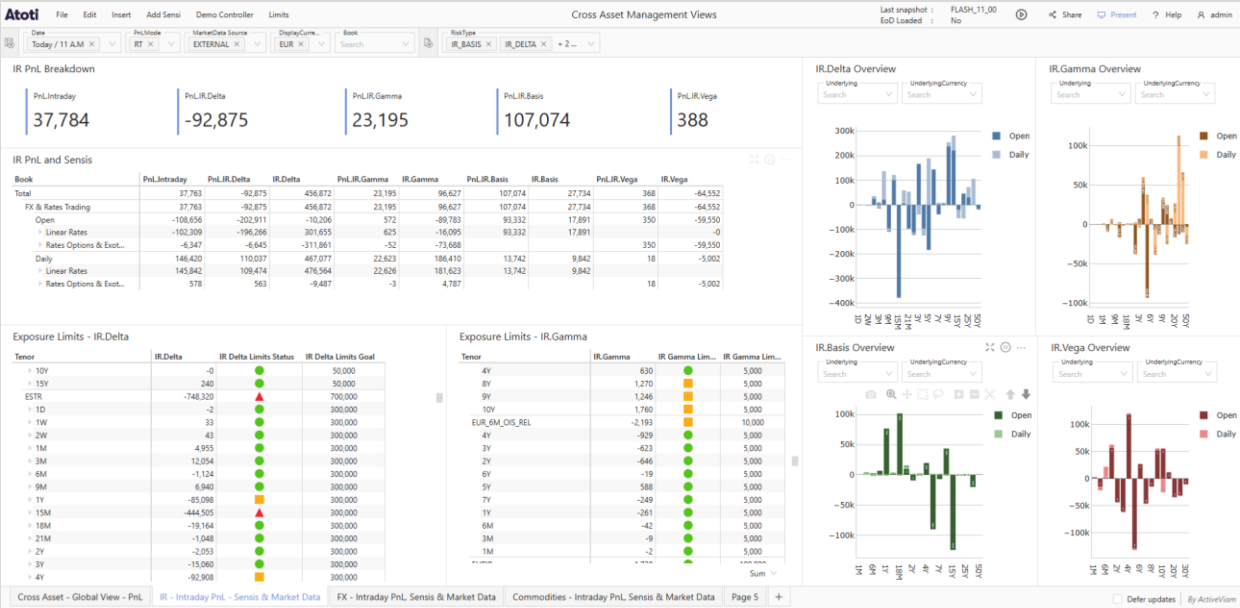
Atoti monitors limits continuously. It gives you early warning of problems as metrics approach thresholds and exceed limits.

Apply any business metric from a simple aggregate of raw sensitivities to a complex derived value such as an estimated P&L or change in P&L from one day to the next.

Warning!
It looks like you might breach some limits.

Make better decisions about trading strategies in-line with your firm's risk appetite.

Dashboards to identify outliers and breaches



Atoti dashboard showing interest rate risk, P&L and limits. EUR.ESTR 1Y and 15M points are problematic and need to be investigated and fixed.

Application of what-if strategies

Atoti can connect to any source for pre-deal simulation or previews. You can create a trade based on risk exposure according to your strategy to see the impact and you can remove that What-if trade when the deal has been fully processed in the booking system.

Atoti What-If capabilities can also be used to understand the impact of both pre-defined and ad-hoc price and position change scenarios on the risk and P&L. Either by applying some temporary shifts to the sensitivities and market data or by loading a full revaluation Atoti can reaggregate and provide comparative and root-cause analytics between stress scenarios and benchmarks.

Atoti helps you understand and validate the end of the day risk and P&L

A full end-of-day revaluation dataset can be loaded on the fly and reconciled with the estimated P&L; flexible drill-down and filtering enables the root cause of discrepancies to be identified and mitigated rapidly whether the cause be missing trades and positions, incorrect market data, or any other factor.

Can it be mitigated?

Atoti excels in providing cost-effective real-time solutions for front office applications, offering superior performance in monitoring intraday P&L and risks and quickly assessing the impact of risk factors and new trades on portfolios.

Société Générale S.A

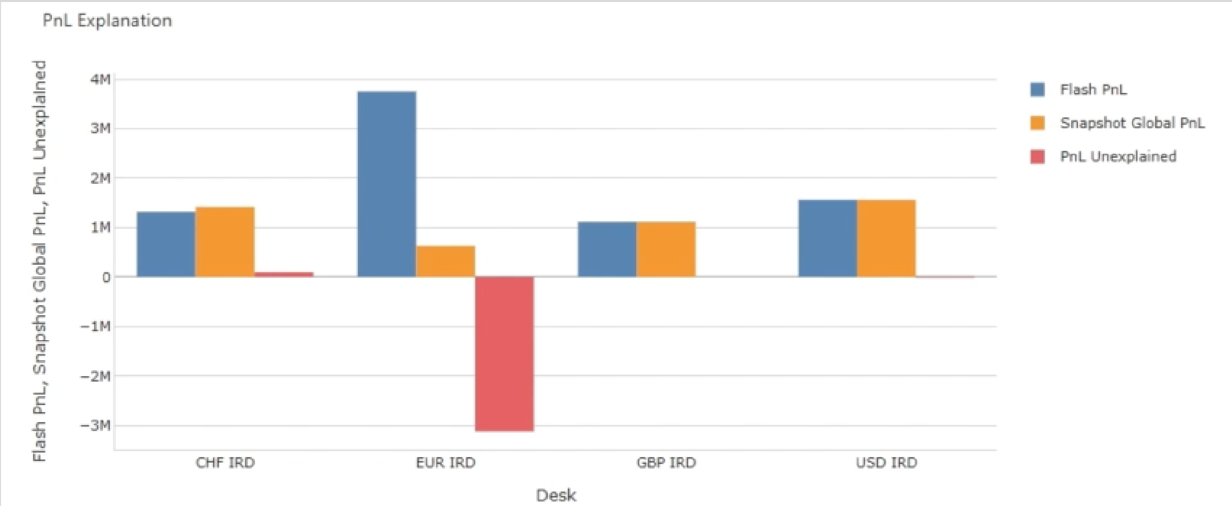
Accelerate Sign-Off

Risk and P&L needs to be signed off every day. Atoti allows anomalies to be identified, investigated and corrected with adjustments. Everything is audited and checked. When it all looks good the results can be signed off.

The approval process and risk validation is configurable at every level to align with your firm's hierarchies and approval workflow.

Regulators are assured that the firm complies with policy and regulation.

Dashboards for reconciliation and adjustments



Atoti UI dashboard highlighting that the EUR.IRD desk has a large unexplained P&L that needs to be investigated and explained.

Eliminate spreadsheet risk

Excel has been used in many organisations where there was an immediate, tactical need to provide intraday risk exposure and the end-of-day reconciliation metrics. When it comes to cross-asset enterprise wide consolidation, spreadsheets reach their limit and bring their own challenges and difficulties that are well-known: multiplicity of versions and customizations, data lineage and auditability issues, lack of consolidated views.

Operational Risk can create major Reputational Risk. The rigorous approach in Atoti to data security, consistency and integrity makes the Atoti UI a superior solution.

Traders, managers and regulators trust the analytics from Atoti.

Product Control P&L reconciliation

Atoti can load end-of-day snapshots and Flash P&L making it a powerful reconciliation tool for Product Control operations. Sensitivities and market data can be overridden to overcome defects coming from risk engines. Because multiple business days can be analysed at the same time its possible for Product Control reconciliation to start on the same day but continue T+1 and beyond if necessary.

Atoti enables reconciliation of the end of day P&L.

What benefits does Atoti bring?

Real-time risk and P&L
- Instantly track and update P&L without batch processing delays.
- Combine risk from multiple source systems in real time.
- Support multiple snapshots through the day.

P&L explainers
- Granular breakdown by risk factors, trade impacts, and market moves.
- P&L estimates fully reconciled with the Flash P&L and Official revaluation.

Sensitivity aggregation
- Lightning-fast computation
- Configurable rebucketing according to market conventions.

Dynamic drill-downs
- Instantly investigate and explain at any level of aggregation and filtering.

Optimized decision-making
- Real-time insights for better execution of hedges, what-if scenarios for pre-trade.
- Run intraday stress scenarios, great for complex derivative desks and longer dated positions.
- Real-time monitor of risk indicators versus risk appetite.

Rigorous approval and reporting
- Be confident that your P&L has been reconciled.
- Know that adjustments have been authorised according to policy.

Eliminate shadow IT and spreadsheet risks
- Demonstrate that the risk is computed rigorously and that decisions are made against complete and correct data.
- Know that it is consistent across the firm.
- Improve trader and quant productivity by providing self-service analytics.

Futureproofs the firm
- Ready for the unexpected.
- Ready for new technology infrastructure, new markets, trading conditions and regulations.
- Prepared for high data volumes and can scale as the business grows.

Do not keep your traders in the dark: make better trading and hedging decisions with Atoti.

How does Atoti do it?

In-memory OLAP cube engine

- Uses an in-memory database with full MVCC model, lockless transactions and bitemporal (time travel) features.
- Lightning-fast aggregation, slicing, and drill-down across billions of records.

Real-time data ingestion and incremental updates

- Ingests data from multiple sources in real time.
- Supports incremental updates without requiring full reloads.
- Can support intraday full reloads without interruption.

Multidimensional data model

- Uses a flexible, multidimensional schema / semantic layer.
- Allowing users to analyze and pivot data by any combination of attributes (e.g., book, time bucket, trader, commodity, sector, country).

Dynamic aggregation and on-the-fly calculations

- Recalculate complex measures—like VaR.
- P&L approximations recomputed in real time using on-the-fly aggregations and built-in formula logic.

Hybrid Cloud

- Atoti supports both on-premise and cloud data sources.
- Atoti also supports hybrid configurations where some data nodes are deployed on-premise and some others on-cloud technology.

Embedded Governance, Audit and Limits Framework

- Built-in data lineage, access control, limit monitoring, and audit trails.
- Atoti ensures enterprise-grade data integrity and operational transparency.

Key Facts from a Tier 1 deployment

200k+
price updates per second

P&L approximation
with Taylor expansions

Ingestion of revalued sensitivities intra-day

•

200M+
data points

250+
measures

200+
dimensions

•

16Tb
data set with concurrent read and write

•

24x7
global operation

30+
desks

200+
traders

Hybrid operation is great for ad-hoc historical analytics.

About ActiveViam

ActiveViam is a fast-growing financial data analytics solution provider. Built for and trusted by leading financial institutions, ActiveViam delivers active intelligence for complex financial analytics. It combines unrivalled technology, continuous innovation and exceptional people to unlock the power of real-time and granular data at scale. Designed as a high-performance semantic layer, ActiveViam's flagship product Atoti, allows clients to implement built-in front office and risk business solutions while accessing customizable technology.

ActiveViam is present in the world's leading financial marketplaces with presence in London, New York, Singapore, Sydney, Hong Kong, Paris and Frankfurt.

For more information please visit activeviam.com or follow on LinkedIn.

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