



ActiveViam within an elastic cloud architecture

- Improve in-memory analytics capabilities with a best-in-class analytics platform
- Save millions on hardware costs each year



Intro

Many Chief Technology Officers, Risk IT and IT managers in the financial services industry are under pressure to save money on hardware costs. At the same time, business users require ever-greater precision and rapidity to comply with regulatory requirements in a timely fashion, as mandated, for instance, by BCBS 239 for data aggregation and risk reporting. The only technology that can deliver adequate performance is in-memory computing.

Up until now risk analytics (in-memory or otherwise) could not take full advantage of cloud environments to reduce hardware costs because such analytics are unpredictable by nature. You never know what level of detail risk controllers will need to access, which books of which desks they will need to investigate. Since regulatory

reporting can no longer wait for nightly batches, you need to make all of the data available for analysis at all times, which creates a significant hardware footprint.

ActiveViam's risk management solutions use innovative technology to run fully dynamically in cloud environments, consuming exactly the hardware necessary at any minute, without sacrificing any of the analytics capabilities offered by in-memory technology. IT departments can save millions in hardware costs while greatly improving their analysis capabilities. ActiveViam's in-memory data aggregation and analytics platform is used today by global banks such as HSBC, Société Générale and Mizuho as well as mid-size organizations and hedge funds to perform front office and middle office risk analysis including market risk, intraday liquidity, collateral optimization and more.



“Banks using ActivePivot configured for the elastic cloud can achieve a significant qualitative improvement in their analytics capabilities and a significant drop in the Total Cost of Ownership of such a solution. ActiveViam is both better and cheaper – at the same time.”

— Antoine Chambille, Director of R&D at ActiveViam

How does it work?

ActiveViam in a cloud configuration provides a mix of pre-aggregated (i.e. much smaller, less hardware-demanding) analytics cubes for the regular, minute-to-minute use by analysts. New cubes start on-the-fly automatically and within seconds whenever an analyst or a group of analysts request them for a deeper dive into data. Those new “child” cubes remain small because they contain just the slice of the data that analysts want to access in more detail and shut down automatically when they have served their purpose. This results in a lower hardware footprint overall but an uncompromising level of precision for any number of simultaneous users.

To accomplish this, ActiveViam takes advantage of three key innovations:

- ActiveViam solutions are designed with a “cloud-first” approach. This enables users to dynamically adjust the hardware capabilities they use depending on what they need in real time, starting and shutting down machines automatically as needed. This is managed with Kubernetes, which means the same app can run with AWS, Google, Azure or with a private cloud on premise.
- ActiveViam completely decouples storage from computing, a stark departure from other, less efficient systems. Taking advantage of object storage technology in the Cloud, ActiveViam has developed lightning-fast data loading and parsing systems. ActiveViam applications can set up entirely new analytics cubes containing tens of gigabytes of data on demand, available for analysis in seconds. This enables risk controllers to perform

multi-dimensional analysis on-the-fly on virtually any data set in less than a minute starting from scratch.

- This support for multi-dimensional analysis means that ActiveViam also decouples calculation formulas (VaR, Liquidity ratio, PnL explain) from data sources (tables, columns, level of detail), which dramatically reduces the cost of maintenance for the application. It means that the application will run exactly the same at any level of aggregation, without the need for duplicating queries and dashboards like with most systems. You can load any data source, add more data and perform the calculations on-the-fly on a new (or expanded) data set.

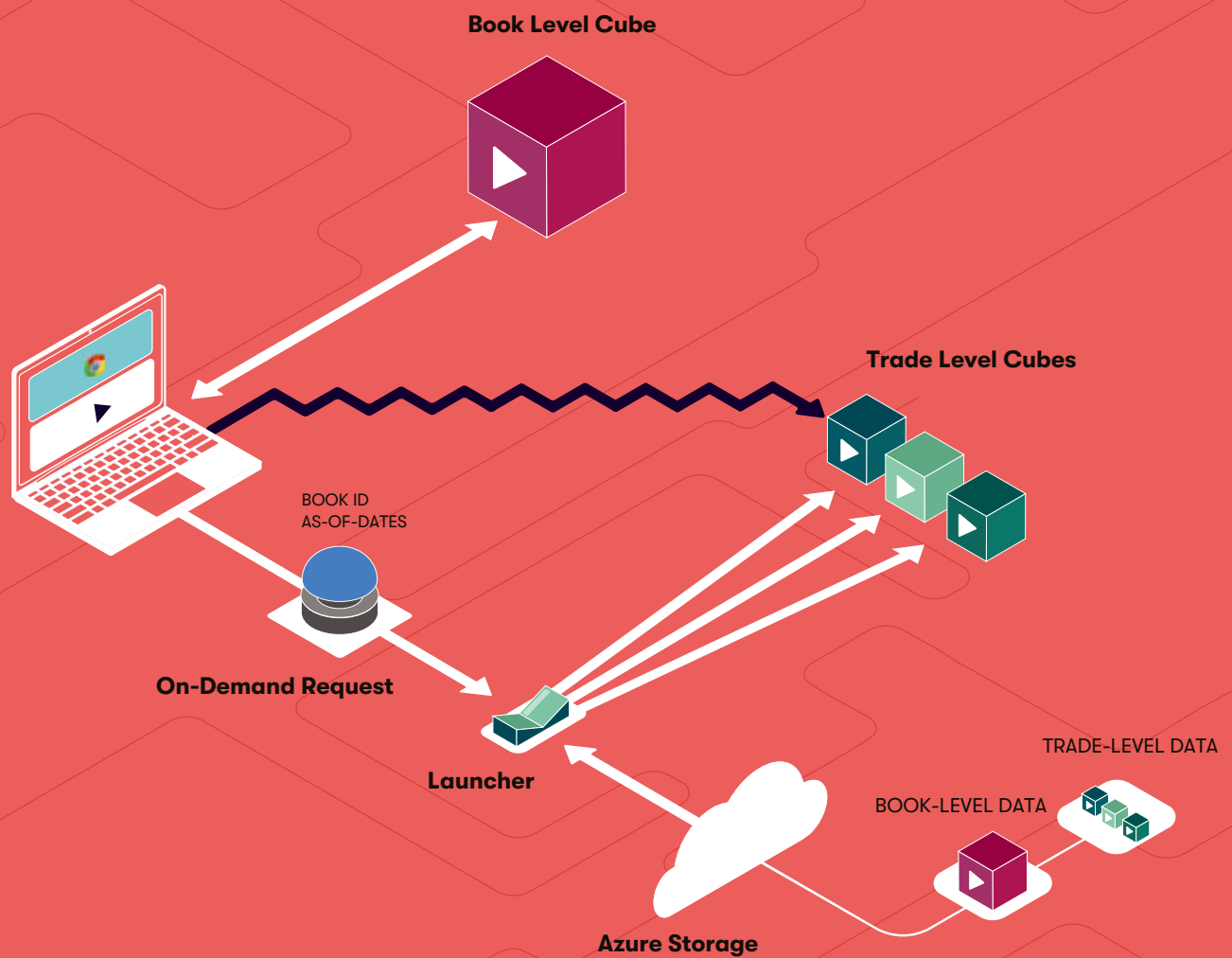
From the user’s perspective, this is completely transparent. It just takes somewhere from a few seconds to one minute to make data available for detailed analysis, free from any aggregation constraint.

Upgrade your systems to ActiveViam analytics

ActiveViam’s in-memory technology brings users to a level of precision and interactivity in data analysis that simply cannot be achieved with any other system. Among the most prominent features of ActiveViam are:

- Support for multi-dimensional analysis
- Drill-down and drill-through to any level of aggregation (from company-level down to individual trades) instantly
- Creating complex ‘What-If’ simulations on the fly

Architecture Overview – Azure Kubernetes Cluster



- Most of the time, all analysts work on a single, small pre-aggregated “parent” cube. We perform usage data analysis with our clients to find the most optimal pre-aggregation setting for them, depending on their needs and their hardware savings goals.
- Whenever an analyst or a team needs to perform a check on a subset of data, ActiveViam creates a new “child” analytics cube for them on-the-fly, loads, cleans up and parses the data they need and makes it available, all within seconds.
- ActiveViam’s best-in-class in-memory aggregation technology allows users to analyze data without any limitation. They can drill-down and drill-through at will, perform multi-dimensional analysis and create ‘What-If’ simulations on-the-fly.
- After the analysis is complete, users return to the “parent cube” and the “child” cube is shut down automatically.

How much you can save on hardware costs with ActiveViam

- 10 days of trade-level data for a bank can represent anywhere from 2 to 15 TB of data.
- Loaded at the netting set level in ActiveViam, this translates to approximately 15% of the total
- Users access trade-level detail from any book and any desk at any time by starting additional cubes and loading the relevant data from object storage within seconds.

Total hardware needs are reduced by approximately 75% while analytical capabilities are improved.

Use Case examples

Value-at-Risk (VaR) for Market Risk

For performing VaR analysis, banks can usually make available either trade-level data over a 5-to-10 day period, or book level data over a period of 50 to 100 days. Neither situation is optimal. With ActiveViam, you don't have to choose: you can make 100 days of history available for analysis at the trade level - for a fraction of your current hardware costs.

Valuation adjustments for credit risk

Analyzing credit risk valuations can require up to millions of data points to produce historical views or simulate forward-looking scenarios which can quickly consume memory and increase costs. With ActiveViam, you can access a counterparty or netting set in seconds and drill-down even further at will to test valuations without having your IT budget increase exponentially.

Liquidity Risk Stress Testing

Liquidity risk stress testing is extremely data intensive: every asset needs to be very precisely qualified and tagged, with multiple attributes

for each, to deliver precise LCR and NSFR figures. Ideally 60 or 100 days history at the most granular detail is needed, but often analysts have to settle for just 5 or 10 days. ActiveViam lifts these limitations: data is loaded and made available for analysis on-the-fly, as it is consumed.

Large scale, fast analytics are historically a very intensive use case especially if you want to deploy on your own hardware. Solutions like ActiveViam's allow banks to take full advantage of the native cloud capabilities of Azure and improve drastically performance whilst keeping a control over their costs

— Xavier Perret, Azure Director for Microsoft France



Key takeaways



ActiveViam running in the cloud can improve your analytics capabilities dramatically while reducing your hardware costs significantly



The technology is designed to integrate with any existing architecture and can be up and running at your bank within a month



It's a particularly great fit for market risk, credit risk, intraday liquidity and all use cases that require time-sensitive, precise analysis on large volumes of data.

Contact us today to set up a demo and proof of concept

Discover our 70+ clients



About ActiveViam

ActiveViam provide precision data analytics tools to help organisations make better decisions faster.

ActiveViam started in 2005 with the vision of leveraging in-memory technology to create an analytics platform where businesses could leverage the largest data sets without restrictions, keep them up-to-date in real time and use them to empower their decision makers. Our goal at ActiveViam, is to let organisations not only make decisions faster, but better; to not only reach their data, but their potential; to not only see their data, but find their way into the future.

ActiveViam is a privately owned company with offices in Paris, London, New York and Singapore.

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