



Altus

clear thinking for Financial Services

Performance Engineering

In a perfect world there would be no place for an Altus service line on performance; it would be an integral factor in design decisions at all stages of the development lifecycle. In the real world, we all know that performance issues continue to dog both legacy systems and new development.

Too often, consideration of system performance is left until late in the development lifecycle, with performance issues often coming to light during acceptance testing. At this late stage, correction of the issues can be time consuming and expensive.

The Altus response is to take a holistic approach to performance, applying the same principles at all stages of the development lifecycle. We believe that systems should be engineered with performance in mind right from the start. In our experience, the earlier you consider the performance aspects of your systems, the more likely you are to avoid costly performance mistakes.





Performance Engineering

The Issue

System performance is one of those qualities that users never notice unless it isn't good enough – and then they make their views very clear!

Agile, performant systems are not created by accident. It is not enough to performance test the finished system and hope that with enough hardware the business won't be too badly affected. Performance, along with other non-functional requirements, needs to be considered throughout the development process.

The solution to any performance issue rarely lies within the remit of a single group. What is needed, in addition to a business focus, is a broad technical view across all systems and supporting groups. This is where Altus can help. Altus consultants have tackled performance issues ranging from single-site e-commerce systems to cross-continent business-critical reporting processes.

The Altus Approach

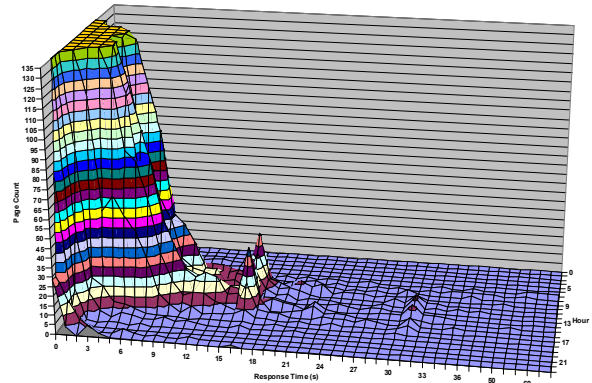
Altus believes in an engineering approach, ensuring that performance requirements are considered from conception to deployment.

Our approach can be applied during requirements gathering, through system design, implementation and right into production; the earlier performance issues are addressed, the lower the overall costs will be, but it's never too late to start. Whatever stage you're at, Altus can help.

Performance Requirements

We start by working with the business to understand the drivers for performance criteria (often regulations, service level agreements or customer satisfaction), and agree specific system performance targets to match (for example internet site response times, report delivery deadlines, transaction throughput or maximum concurrent users).

Example Response Time Profile



This ensures that the performance requirements represent the real needs of the business – which might mean providing functionality better matched to the business process and taking the load off the critical resource – the users – rather than designing the system to produce huge reports as quickly as possible.

Quantifying Performance

It is important (whatever the stage of development) to have clarity over what we mean by performance, to ensure that we're measuring the right things.

We will quantify the desired performance as specific, testable requirements. Performance requirements that cover not just system response times and models of typical user behaviour, but also business transaction throughput, as well as system capacity in terms of volumes of users, transactions and data, and scalability in terms of the cost to increase that capacity.

Design For Performance

Under schedule pressure, developers often forget to consider the non-functional aspects of system design. From ignoring communication costs (whether due to COBOL-style design on a distributed platform, or poorly implemented object-relational mapping), to concurrency, locking and deadlock issues, or just "nickel and dimeing" performance away across too many messages, objects and layers.

We can help you select the system architecture, infrastructure and platform to ensure that the necessary performance can be achieved without jumping through hoops. By allowing the system to take advantage of middleware, to cache, replicate, partition and “pre-join” frequently used data, to prioritise requests and to manage concurrency – developers are able to concentrate on delivering functional, maintainable code.

There is no “one right answer” – each system has different performance requirements. Some applications require complex overnight processing which must be batched or processed in parallel for efficient execution; some applications just need to get data onto the screen quickly; for others calculation throughput matters more. Most long-lived systems require some form of archiving approach to ensure that performance is preserved as historical data volumes increase.

Performance Testing

Performance testing shouldn’t be left until just before release date – as with functional testing, a “big-bang” test is rarely recommended – and performance testing doesn’t always require a “production-like” test environment.

We will design a complete performance test approach, with clear objectives for each test: testing response times, throughput or correctness under load, soak testing, capacity or scalability. We can also help ensure that transaction mix, background load, user behaviour models, and data volumes and complexity are realistic.

And, perhaps most importantly, we can help you interpret the results for the business stakeholders so that they can make an informed decision.

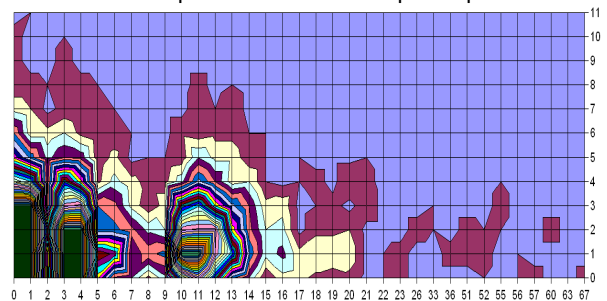
Performance ‘SWAT’

Performance issues in complex systems are notoriously hard to isolate – a scientific approach is needed to generate, test and prove or eliminate possible causes.

Altus consultants have the experience to sift and analyse the morass of data, to visualise the key patterns and identify and evaluate possible causes.

We can also help you identify and implement the “quick wins” – queries to be tuned, code to be re-engineered, infrastructure changes to be made – allowing the users to get back to business.

Example Performance Hot-spot Map



How Altus Can Help

Altus consultants have experience of all aspects of performance engineering, and can help you at every stage of the process; typical assignments include:

- Performance and non-functional requirements gathering, specification and analysis;
- Architectural and high-level systems design or design review with focus on performance;
- Guidance on low-level design and coding techniques to ensure performance;
- Performance test planning and interpretation of results to determine business impact;
- Assessment of existing or in development systems to identify current and potential performance issues and to identify and prioritise remedial work.

Whether you are developing new systems, or dealing with problems in legacy applications, Altus can help you achieve the performance your business needs.




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Altus understand Financial Services - the products, the processes, the people and the systems that make the whole thing tick. With years of experience in complex change programmes, we understand that successful solutions begin with the business.

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