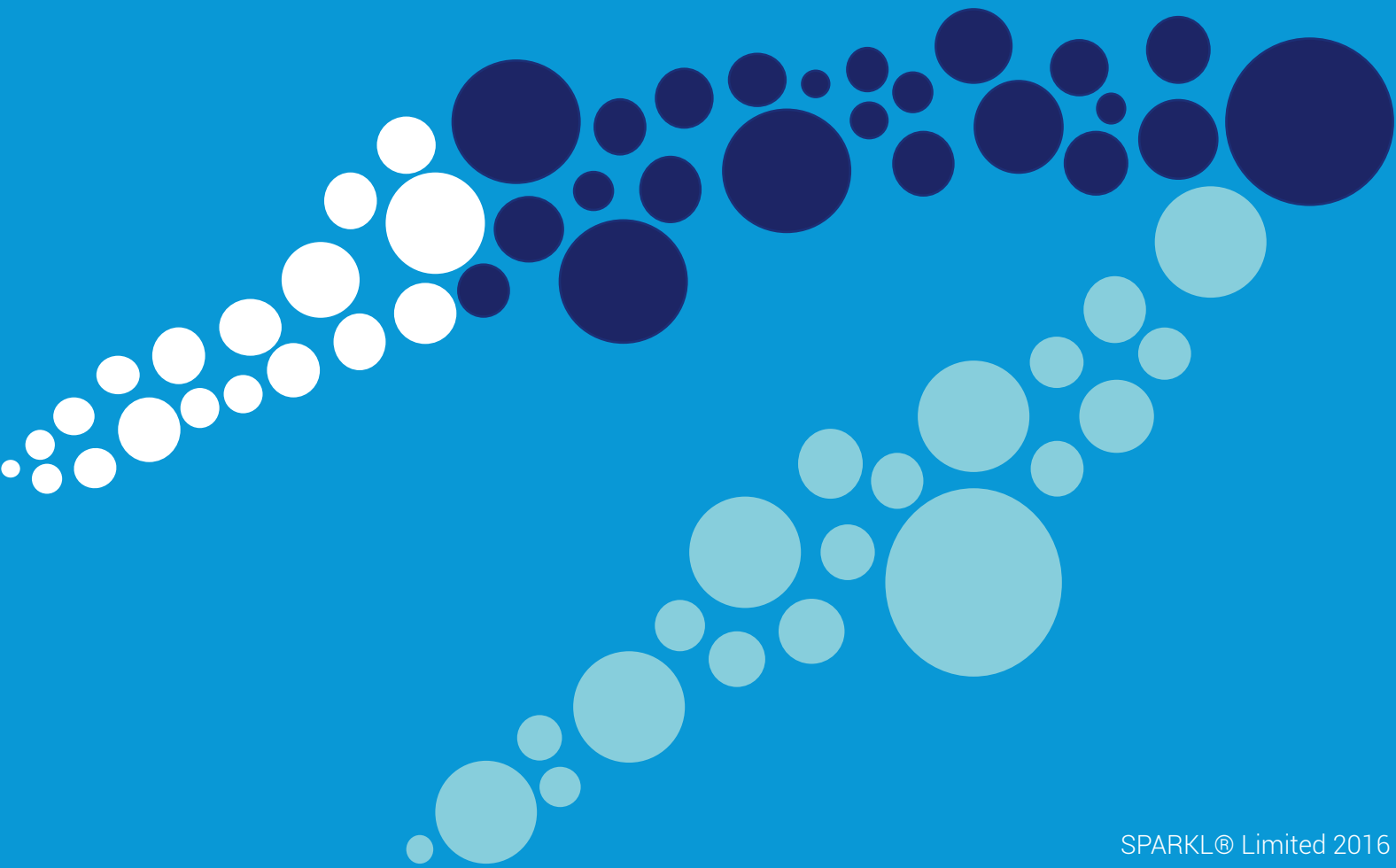# SPARKL®

Solution Brief
Bringing Machines Together in the Black Box Swamp with the SPARKL® Sequencing Engine

Bring Machines Together

All enterprises suffer from the black box swamp. Systems that work fine on their own, but won't play nicely with others.

It's hard to describe how a system should work - let alone how or why different systems interact.

SPARKL® is powerful technology for managing the behaviour of distributed systems. The lightning fast, distributed SPARKL® Sequencing Engine drives events between machines, applications and things.

It provides Distributed Intelligence for true fog computing, allowing edge devices to interact with or without the cloud.

It introduces Reasoned Provisioning which spins up secure, on-demand infrastructure to meet the need of actual business logic.

Secured by blockchain, SPARKL logs every single event in a clean, connected Audit Trail to solve compliance and regulatory reporting across machines and systems, old and new.

SPARKL® has many applications across a range of industries, including:

- Finance and enterprise systems, managing data provenance and security breaches
- Manufacturing, automating and monitoring production lines
- Internet of Things, choreographing devices in smart cities and robotics
- Infrastructure, automating software-defined infrastructure and autonomic networks

SPARKL® designs and develops the SPARKL® Sequencing Engine in London, UK. We work with partners including Cisco and Intel to market the product to innovators and customers worldwide.

Introduction

The next generation of IT leaders in the banking sector face the same problems as their predecessors unless they address the legacy IT systems that are often blamed for outages.

The IT industry has been tasked with the enormous challenge of implementing innovation into the finance industry whilst taking on the fiendishly complex legacy systems.

The result of those pesky systems is that banks are often taunted by complaints from the public for constant fines.

In one case in 2015, the Financial Conduct Authority (FCA) announced it was fining Merrill Lynch, the Bank of America's wealth management division, for continued failures in its transaction reporting. They were fined $2.20 per line of incorrect or non-reported data - a higher than usual fine due to repeated failures to address the root cause of this issue.

In other cases, massive IT outages in Tier 1 banks which resulted in payments not arriving when expected, including tax credits and disability living allowances, which has huge ramifications not only for its customers, but the bank's reputation suffers heavily as well.

With banks facing competition from new challengers (some employing a social media approach in their strategy) in the financial sector, customers are leaning away from the old favourites and beginning to move to services they can trust implicitly.

Of course, banks are never without their problems - complexity is unavoidable, yet somewhat mismanaged in the financial industry.

And we can manage this complexity, with an innovative solution that delivers on key business demands of flexibility, cost, security and transparency.

Let SPARKL show you how.

The Corporate Challenge

Under pressure from regulators and shareholders, banks are forced to commit huge amounts of money and resources into the area known as conduct risk.

They are obliged to report on every aspect of their operations with greater frequency and precision than ever before.

Management committees dealing with compliance, risk and conduct have multiplied, and scores of new compliance and oversight roles have been created in the wake of the financial crisis in 2008.

And yet the fines just keep on coming.

These fines have totalled $20 billion for one global bank alone in just over two years. Even this cost is nothing in their eyes compared to the reputational damage they suffer.

The pain is felt above at board level. The solutions are desired by the business - and yet frequently too complex for the technologists to implement.

These technologists preside over vast collections of black box (or manually-written) applications running over generic infrastructure.

Today's technology stack either simply doesn't provide the detailed, comprehensive log data that is required to satisfy the demands of regulators and shareholders or provides too much data to analyse effectively.

A typical global bank can have over several thousands of applications running in excess of thousands of systems.

Every system is a black box whose internal operations cannot be inspected, let alone be tracked from the outside. Every system uses infrastructure in ways that are variously undocumented and equally impossible to track.

This black box swamp kills agility, flexibility, stifles innovation, shackles capital - and above all, increases the potential for conduct risk.

As a result, a company's IT infrastructure is often fragmented and inconsistent. Data about the same customer, costs relating to the same product or revenues attributable to a single relationship are often divided in between systems that aren't able to talk to each other properly.

IT complexity is sometimes the result of systems having been built separately within individual departments. During the pre-crisis boom, this was often the quickest way to capture new business opportunities.

Tools that measure various risks or customer values may be spread around separate systems within the company, sometimes even living in an Excel spreadsheet on an employee's desktop.

Banks are typically vast enterprises with endlessly moving parts that are worth billions of dollars, yet the business view of IT remains rather traditional; seen as a supplier rather than a partner or a core part of the business.

Management is often reluctant to invest more capital on breaking apart the technology of the company when a somewhat OK system already exists. Once the core processing systems were built in the late 1980s for deposit accounts and payments, they were never touched again with the exception of maintenance, hence the raft of complexity that exists within those systems.

Figure 1: Example of IT complexity in a single mortgage system at a bank, otherwise known as the Black Box Swamp
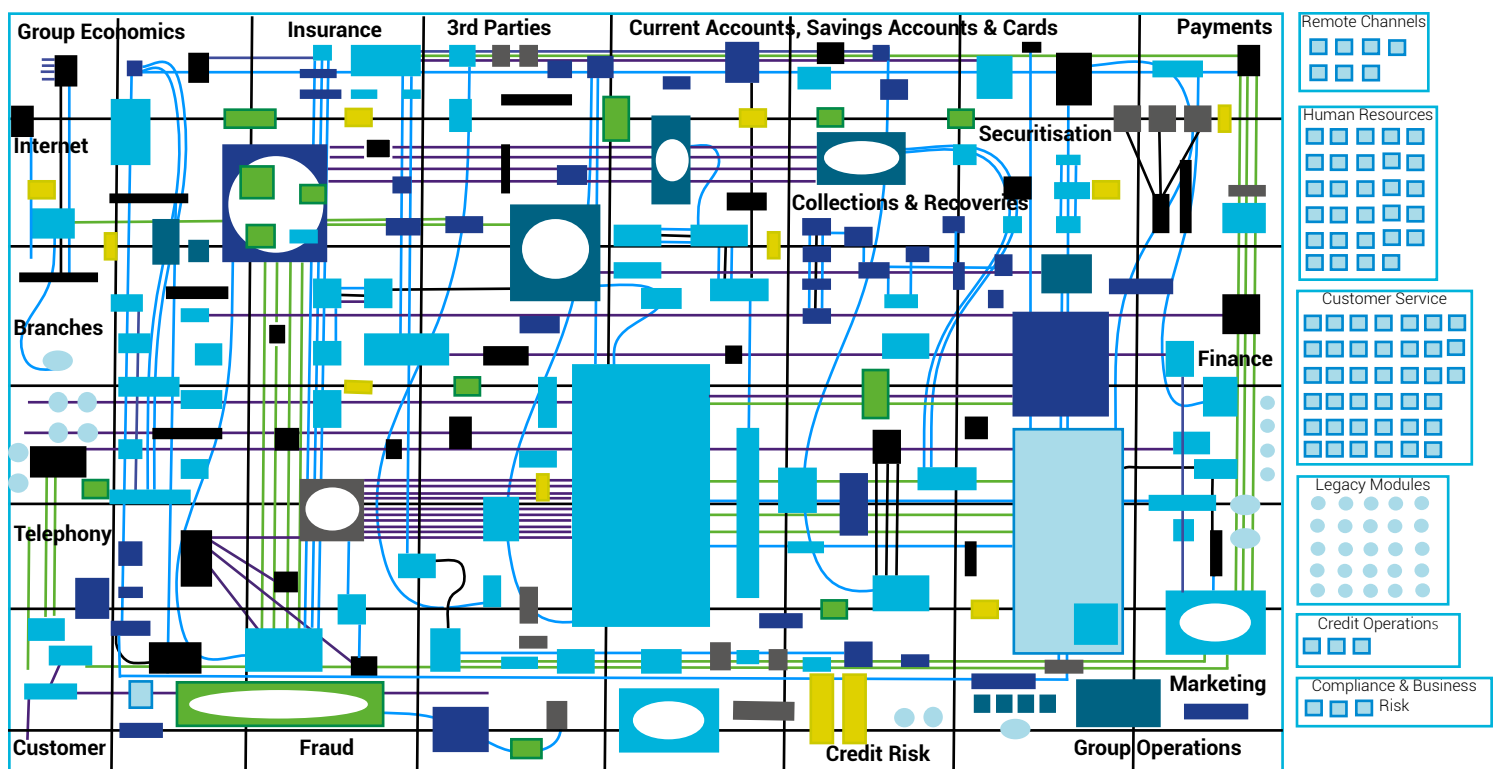
The SPARKL Solution

SPARKL has designed and developed the SPARKL Sequencing Engine. This is powerful technology making machines work together, and providing a unique solution meeting the key business demands of Transparency, Security, Agility, and as such, help the business Free Up Capital.

Transparency

SPARKL's Clear Box® configuration lets you express the behaviour of all your systems, from applications right down to network infrastructure. This generates a clean, connected **Audit Trail**.

With consistent usage and performance metrics, this provides businesses with long-desired, continuous visibility in their own processes and the systems that contribute to it - as well as a complete understanding of the events that flow through them.

Security

Through **Distributed Intelligence**, SPARKL makes cloud, edge and legacy systems work together, ensuring your data stays in the right place, safe and private for increased agility and better security.

Agility

The SPARKL Sequencing Engine introduces **Reasoned Provisioning** which spins up secure, on-demand infrastructure to meet the needs of actual business logic, with high levels of granularity.

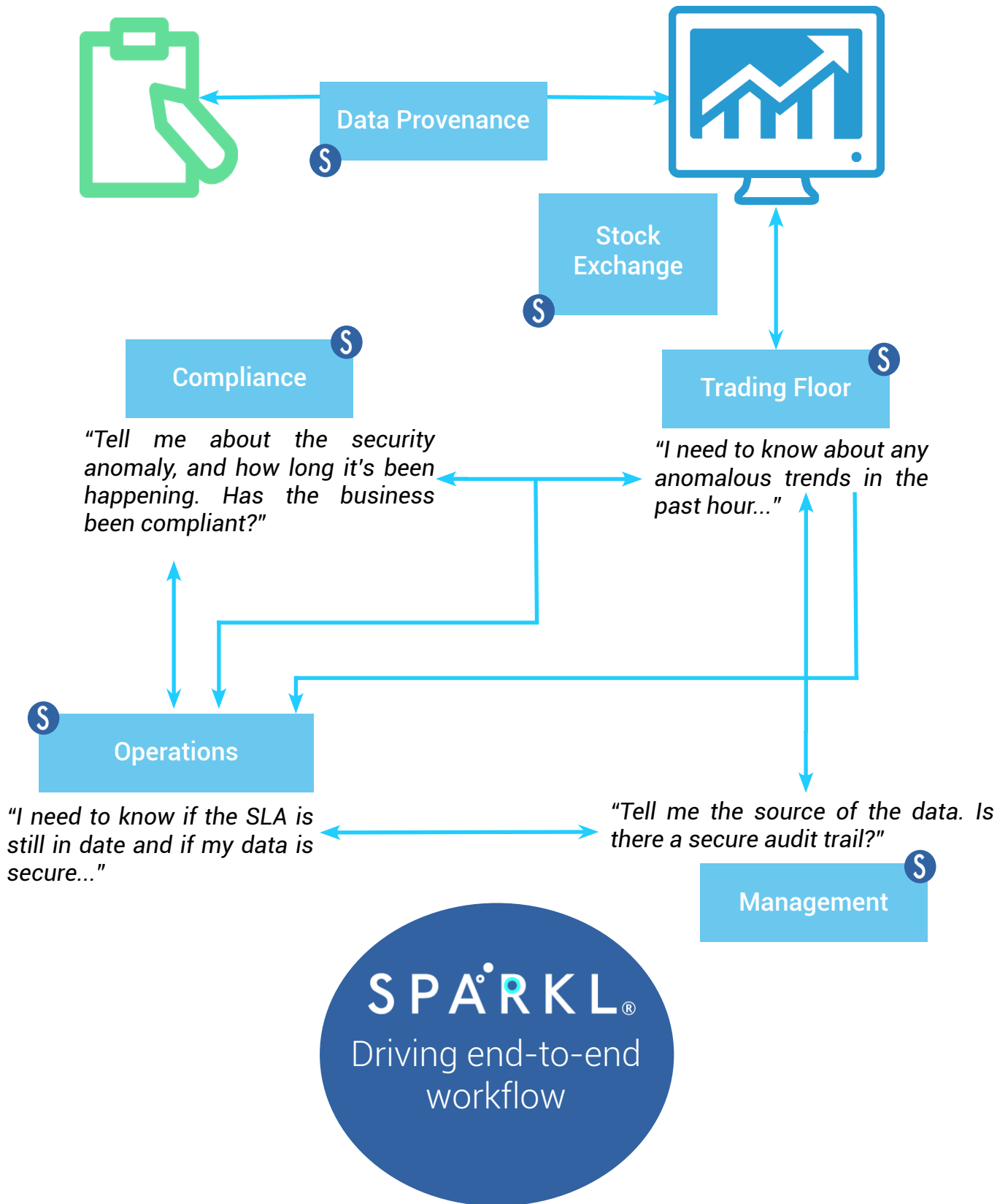Now all your systems conform instantly and automatically, breathing new life into your IT assets.

Freeing Capital

SPARKL gives your company an opportunity to collaborate in controlling legacy costs and potentially reshape the IT architecture for competitive advantage, as well as generating maximum return on investment (ROI) value by bringing together legacy and modern systems.

Data Provenance - Storyboard Visualisation

Data Provenance

Stock Exchange

Compliance

Trading Floor

"Tell me about the security anomaly, and how long it's been happening. Has the business been compliant?"

"I need to know about any anomalous trends in the past hour..."

Operations

"I need to know if the SLA is still in date and if my data is secure..."

"Tell me the source of the data. Is there a secure audit trail?"

Management

SPARKL®
Driving end-to-end workflow

Conclusion

Every company has IT architecture with its own black box swamp, but very few are able to control it. Instead, these monolithic systems are grown organically and the results are often duplicated with inconsistent data and a fine to boot.

Tracking data can take up valuable time and resources that could be better spent on driving actual innovation. Overcoming the complex data landscape that exists in many banks is an enormous challenge.

The demand for technology like SPARKL has increased in recent years as the markets in which these firms operate have become more complex and subject to regulatory scrutiny.

Yet banks remain wary of new technology. After all, Citigroup forecasts that fintech will have a major impact on the industry, cutting 2 million jobs in Europe and the USA over the next decade.

Under pressure to return to pre-2008 profit levels, banks are struggling to meet customer expectations, such as 24/7 access and support, and for others, an interactive social media-type experience, complete with emojis.

If banks are no longer respected like they used to be, then these companies need to take a leap of faith and start acknowledging that we're at the forefront of a digital revolution. Large companies whose agility let them down will be the ones to suffer.

It's time to start thinking like a startup and act like a player. The SPARKL Sequencing Engine is the key missing link bringing order to the chaos of the black box swamp.

Find Your Use Case

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See SPARKL tutorials and demos at
sparkl.com/docs/web