

WHITEPAPER

GROWTH TOPS THE AGENDA FOR FINANCIAL CEOS



While increasing regulation and new capital requirements ensure risk, compliance and operational improvements remain high on their agendas, banks and other financial service providers around the world are focused on revenue growth.

Facing competition for business from both traditional sources and new, alternative providers, Gartner says that growth is the predominant priority for more than half of financial services CEOs, who expect the proportion of revenues they achieve from digital channels to more than double over the next five years.

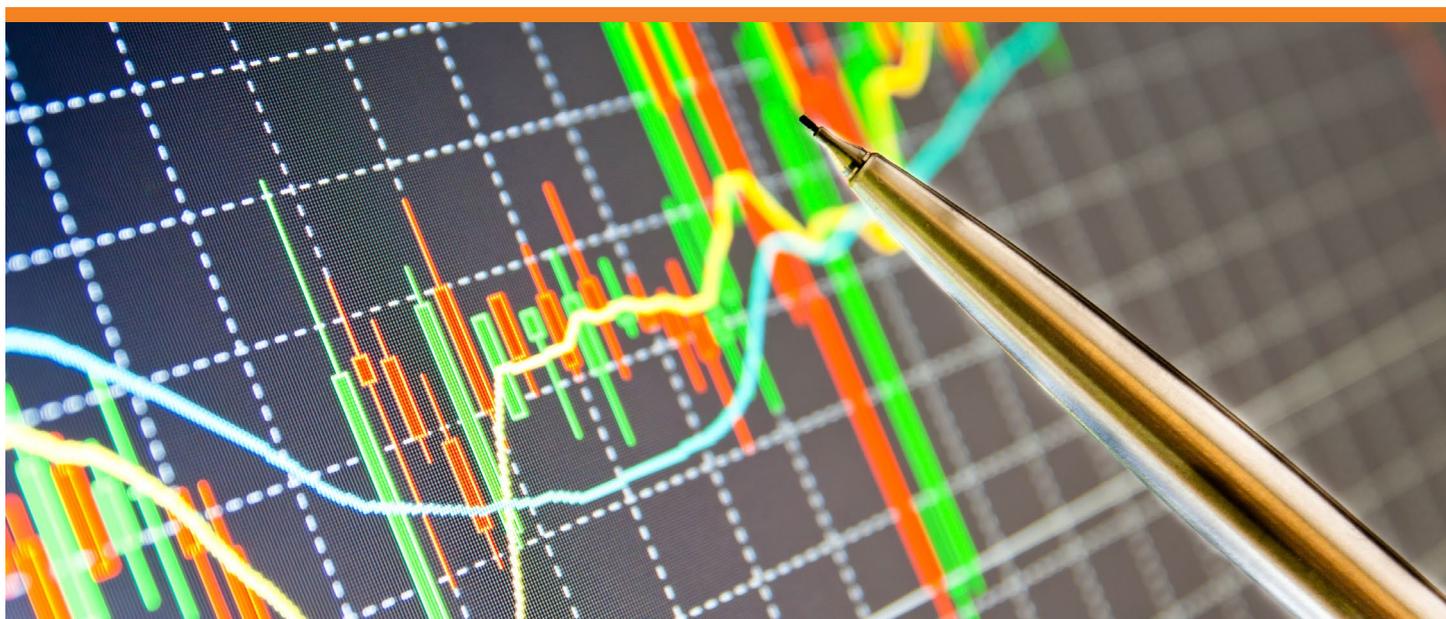
From improving customer decision making and assessment of risk, to understanding markets and ensuring best use of available capital, financial institutions are investing in predictive analytics, vast amounts of data and high performance computing systems to inform every trade and decision they make.

BIG DATA AND DIGITAL DEMAND ADDS TO COMPUTING BURDEN

The accelerating growth of online channels in financial services and the explosion of data and analytics needed to deliver timely and actionable customer insights require significantly greater computing power and data centre capacity.

Security, performance and compliance considerations mean that the majority of financial institutions will continue to place their data and the bulk of their IT workloads on-premise or in their own purpose built data centres.

The quickest way to deliver the rapid insight and decisions is to locate data and computing resource close to financial decisions, where it can be accessed and analysed more quickly, with minimal latency and networking costs.



GROW OUT OR GROW UP

For those close to full capacity, a choice must be made between building new data centres and finding a way to squeeze more resources into existing facilities. It is not uncommon for a third of the floor space in large financial institutions to be used for computing infrastructure. The cost of real estate in the world's financial centres means making optimal use of existing space paramount.

The rise of high performance computing, digital channels, big data and predictive analytics in the financial services industry has driven large increases in power densities and heat levels. Servers require enormous energy, as do the systems currently used to cool them.

The Digital Power Group expects that the amount of electricity used by the world's data centres will approach 1,000 TWh over the next decade, more than is used by Germany and Japan combined. Consumption of electricity by data centres in the US alone is projected to reach 140 billion kilowatt-hours a year by 2020, the equivalent annual output of 50 power plants.

One reasonably large traditional data centre can easily consume sufficient energy to power tens of thousands of homes, with up to half of the energy consumed used to cool computing equipment, instead of on the task of computing itself.

CALMING THE CHAOS IN DATA CENTRE COOLING

Traditionally, data centres have used computer room air conditioning (CRAC) units which pump out massive volumes of chilled air to cool IT equipment and push hot server exhaust air towards return air ducts.

This approach to cooling computing systems, known as “chaos” air distribution is highly inefficient: air is not applied consistently; air collects in different temperature-based layers across the data centre and hot exhaust air can be sucked back into the server, heating equipment to dangerous temperatures and leading to IT failure.

To overcome these problems, many data centres have adopted hot aisle / cold aisle rack orientation arrangements. These generate convection currents to improve airflow but are only marginally more effective than “chaos” distribution because air is still able to move freely through the data centre.

MAKE ROOM FOR ON-PREMISE COMPUTING SCALABILITY

Iceotope has addressed the space, power and cooling constraints faced by financial institutions needing data centre flexibility and scalability with its innovative liquid immersion cooling technology. Instead of using air to cool computers, components that generate heat are immersed in a completely safe, non-flammable coolant, dramatically improving the efficiency of data centre operations and delivering a low total cost of ownership.

By replacing large, power hungry air conditioning units with compact and resilient liquid cooling systems, financial institutions can achieve the same computing power with just a quarter of their original server space within just a few hours. Up to four times more computing resource can then be installed to provide additional capacity without any need for additional real estate.

Removing air cooling infrastructure allows the system to operate in virtual silence, making it possible to deploy high performance computing alongside the teams that need them. This increases efficiency and improves the timeliness critical decisions by reducing delays associated with network latency.

Iceotope's liquid cooling technology uses significantly less energy than air conditioning units. Data centres using Iceotope's systems have been able to achieve power usage efficiency (PUE) of 1.1, compared to an industry average of around PUE 1.6.

Early adopters have been able to achieve savings of more than 80% on cooling energy consumption through immersion cooling and have ensured that more than 90% of data centre energy is used for computing itself.

Further energy efficiencies are possible by capturing the waste heat that IT components give off and using it to heat offices or wider district schemes.



TAKE THE STRAIN OUT OF THE DATA CENTRE

The continued investment by financial institutions in big data, predictive analytics and the digital channels required to drive revenue growth will place ever greater strain on high performance computing resources and expensive data centre space. Centre space and power usage will be an important part of ensuring financial institutions have the computing capacity they need to grow.

Iceotope's innovative liquid immersion cooling technology addresses many of the challenges faced by financial institutions needing more computing power. By using a fraction of the floor space associated with air conditioning units, Iceotope provides the flexibility and scalability required to expand a data centre without requiring further data centre space.

By providing room for more resource and the ability to place high performance computing capability close to its users, financial institutions can respond faster to market demands and provide the instant insight and intelligence they need to achieve sustained revenue growth.

By using less power, consuming virtually no water and providing the ability to capture and reuse heat, Iceotope dramatically improves the efficiency of data centre operations and offers a low total cost of ownership.

BENEFITS OF ICEOTOPE LIQUID COOLING TECHNOLOGY



Silent: Iceotope's systems are virtually silent, allowing computing resource to be placed alongside users with no need for acoustic insulation, certification or regulations.



Efficient: Iceotope's cut energy consumption, consume virtually no water and offer the chance to capture and reuse heat.



Resilient: Iceotope's systems are incredibly robust, can be installed in areas where most systems struggle and provide a tough, low-cost option for business continuity.



Compact: Iceotope packs the same computing power into a quarter of the space that a traditional data centre can and demands less of the infrastructure.



Deployable: Iceotope's systems allow for a fast and hassle-free set-up and use less space, less infrastructure and less money.



Recapture: Iceotope's liquid cooling technology captures the waste heat that the IT components give off, which can be used as an alternative for office heating.





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ABOUT ICEOTOPE

Iceotope is the home of cutting edge liquid cooling technology. Designed and manufactured in the UK, our patented technology delivers greater efficiency – occupying less space, creating less noise, demanding less cost and, crucially, consuming less energy.

The need to cool standard computing systems creates a constant challenge for the IT industry – it makes for bigger, noisier and more expensive systems. In particular, it means that high performance computing is an energy-hungry activity. Around 10% of the world's electricity is used by ICT, with data centres a major consumer. Every kWh consumed is a higher bill for the operator and a bigger impact on the environment.

Iceotope's technology cuts energy consumption, which cuts cost in a big way. By immersing the components in the completely safe liquid coolant, the Iceotope system doesn't just keep things cool, but also keeps them quiet, without the industrial drone of fans and pumps. The result is a high-performance system you can put to work side-by-side with your team.

Since 2005, our organisation has been driven by the kind of technical experts that look beyond conventional ways of working to find more efficient methods and effective solutions to today's most pressing challenges. Now, Iceotope is delivering the innovation that can transform high performance computing, offering a step-change in energy-efficient technology.

GET IN TOUCH

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