

# **WHY KAAZING WILL DISRUPT TODAY'S WEB INFRASTRUCTURE ECOSYSTEM**

A BUSINESS WHITEPAPER

## Why Kaazing Will Disrupt Today's Web Infrastructure Ecosystem

*Can't live with 'em, can't live without 'em.* That sums up the feelings of many IT professionals towards application servers – and, more generally, towards Web middleware. Simply put, companies can't live without a Web middleware layer because back-end systems cannot talk directly to Web browsers or mobile devices; this makes the ability of Web middleware to “translate” back and forth between business protocols and HTTP essential. Also critical is Web middleware's role in balancing workloads, ensuring high availability, maintaining security and delivering many of the other services that underpin a modern organization's most valuable asset – its online presence.

But neither can businesses live *with* Web middleware – not comfortably, at least – because this ubiquitous IT layer imposes a number of heavy costs:

- **Financial cost.** The Web middleware layer is expensive and not particularly scalable. So the cost of maintaining traditional Web infrastructure, whether in a physical or virtual/cloud environment, grows rapidly as rising transaction volumes drive demand for additional server instances and, if the licensing model requires, more software licenses as well.
- **Complexity.** Even the most modern and integrated middleware solutions, such as Oracle Fusion or IBM WebSphere, are grounded in 15-year old, byzantine technology.
- **Lock-in.** Once an organization has adopted a middleware solution from a provider like Oracle, IBM, or SAP, switching costs become astronomical.
- **Performance.** With real-time responsiveness quickly becoming the norm online, organizations are discovering the hard way that traditional Web middleware was never designed to deliver the levels of latency, speed, and interactivity that today's users demand. While upgrading traditional middleware will usually enhance legacy Web performance, today's forward-looking companies recognize the absolute need to give their customers, partners and other stakeholders something fundamentally different: a *Living Web* experience.

Listening to pronouncements from Oracle and IBM, one would never know that a problem even exists. Each company's empire rests comfortably on a foundation of traditional middleware; without that unifying layer, their database, application and hardware offerings begin to look a lot like point products. So it's no wonder they

anchor their plans for world domination in pledges of continual improvement in the all-important middle tier. Each company invests heavily in both R&D and acquisitions aimed at protecting and extending the value of its existing Web strategy.

What if there were a fundamentally better strategy, one that addressed all four of the costs imposed by Web middleware and that allowed companies to renounce the legacy Web in favor of the dynamic, interactive, collaborative, real-time *Living Web*?

A fundamentally better strategy for building Web infrastructure *does* exist. It's called the Kaazing Platform. Based on the WebSocket open standard, the Kaazing Platform is poised to usher in the next online revolution: a wholesale move to the Living Web. The Kaazing Platform is a quintessentially disruptive technology that is already changing how individuals, businesses and other organizations view their online presence, and how people build and use Web and mobile applications. Along with other WebSocket-based technologies, the Kaazing Platform is on a trajectory to render traditional Web middleware solutions obsolete over the next five years.

The Kaazing Platform performs two vital functions. First, it enables connected devices to communicate with back-end servers *directly* rather than through a "translator," using native standard or custom business protocols rather than HTTP. This erases the need for application servers. It also delivers speed, latency and bandwidth-consumption characteristics that were previously unheard of over the Web and attainable only with a direct client/server TCP socket connection. Second, the Kaazing Platform performs all of the critical enterprise services that comprise the middle tier's other reason for being; namely, load balancing, scalability, high-availability, security and manageability.

There are many reasons why Kaazing will disrupt Oracle's and IBM's plans for the future, not to mention the legacy Web itself. We are pleased to present the following ten.

**10) The future lies ahead, not behind.** While Oracle Fusion and IBM WebSphere are backward-looking middleware layers, the Kaazing Platform offers a framework for forward-looking development.

Fusion and WebSphere are big, powerful, moderately closed middle-tier products that are ideal for consolidation but sorely lacking when it comes to helping organizations re-imagine their future. The Kaazing Platform, on the other hand, is a lightweight, open standards-based platform that both allows companies to see their business in a whole new light and empowers them to support that vision of the future with applications

purpose-built for the real-time rigors of the coming decade. While traditional middleware requires mind-crushing numbers of instances and performance-enhancing “helper apps” such as exotic in-memory products, Kaazing offers a self-contained and inherently scalable and high-performance platform that delivers much lower total cost of ownership (TCO) than any traditional Web middleware solution can hope to achieve. But that bottom-line benefit is just the “icing”; the “cake” is the unprecedented ability of a Kaazing-enabled organization to grow its top line by tapping entirely new sources of revenue (more on this point below).

**9) Less is more.** As businesses attack increasingly complex challenges, they need to rethink all the layers in their technology stack or risk having the complexity of their IT infrastructure get in the way of business growth. Unfortunately, traditional middleware does not lend itself to simplification. On the contrary, with any HTTP-based legacy Web solution, one invariably accumulates more and more layers over time – more backup layers, more replication layers, more layers up and down the stack. While each new product generation may bring better performance, any speed-up is offset by the additional cost, complexity and organizational burden imposed by the never-ending middle-tier sprawl.

The Kaazing Platform, unshackled from the demands of the legacy Web, offers true IT simplification that is literally unattainable with traditional middleware solutions.

**8) A fundamentally new architecture.** Application servers have been at the center of the legacy Web for so long that it’s almost impossible to imagine the online world without them. Kaazing, the heart of the *Living Web*, enables just such a vision. The Kaazing Platform allows companies to rethink their entire online architecture – hardware, software and services – from the ground up. This in turn enables them to rethink their entire online *presence* from the ground up. Released from the onerous architectural limitations of the HTTP-driven legacy Web, Kaazing-powered companies are free to re-imagine their future and tap into new growth areas.

**7) One size does not fit all.** Oracle and IBM are renowned for the depth and breadth of their industry-specific solutions. The accolades are well-deserved in two respects: both companies offer a staggering array of applications for every conceivable industry segment and sub-segment; and their sales and marketing teams are extremely adept at convincing customers that these industry-focused solutions will fit *their* specific needs. But as customers soon discover, the fit is mostly skin deep, consisting primarily of industry-specific fields and processes.

The Kaazing Platform, on the other hand, delivers low-level architectural benefits that drive high-level business value for every industry served. In Financial Services, for example, the Kaazing Platform supports solutions with near-zero added latency; in eCommerce and online gaming, the Kaazing Platform supports applications that can scale arbitrarily, at low cost, without losing their interactive, “live” character; in retails, the Kaazing Platform supports applications that can offer real-time interaction with shoppers; and so on for each of the industries Kaazing serves. Where traditional Web middleware is fundamentally one-size-fits-all, the Kaazing Platform delivers differentiated architectural benefits across industries.

**6) A deeper shade of green.** Data centers consume enormous and rapidly growing amounts of energy. There are many drivers of this consumption, but an obvious one is the mid-tier sprawl necessitated by traditional Web middleware architectures. With the Kaazing Platform, companies can reduce the size of their Web middle tier or eliminate it altogether, slashing not only their energy consumption, carbon footprint and electricity bill but also their hardware and support services budget.

But that’s not all. Another large component of the global IT energy budget goes to support network bandwidth requirements. Simply stated, the more bits that must traverse the Web, the greater the amount of hardware, software, services, and energy that are needed to keep them in motion. The prime culprit here is request/response-driven HTTP. An ancient technology that dates back to the birth of the Web yet still lies at its heart, HTTP fills the world’s data pipes with useless bits of information in the form of bloated headers. That didn’t matter at all when the Web was largely static and text-based. The appearance of rich media put some pressure on HTTP, but what really began to push this technological anachronism over a cliff was the ascendance of the Living Web, where users instinctively demand instantaneous, interactive response from every application they touch.

To cope with the earliest demands for interactivity, which started to appear in the late 1990s, the Web community devised workarounds such as Comet and Ajax that attempt to simulate real-time response. These are the same techniques that developers must rely on today to simulate a Living Web experience with legacy Web infrastructure. Now as then, these workarounds are cumbersome and costly and succeed only partially in terms of speed and latency. Worse yet, they impose a staggering “tax” in the form of increased network bandwidth consumption because their simulated real-time data streams are actually endless series of discreet messages, each with a bloated header.

The Kaazing Platform eliminates all of these problems at the root. Rather than try to simulate a live connection, the Kaazing Platform simply creates one – a persistent, full-duplex, near-zero added latency, “live” WebSocket connection between a Web browser or mobile device and a backend server (or between two servers). A mountain of useless header data is eliminated, cutting network bandwidth consumption by 99% or more (depending on the number of connected clients and message sizes) and, with it, energy consumption and carbon emissions.

**5) Choice, not lock-in.** Oracle and IBM offerings come in one flavor each, “Oracle” and “IBM,” so anyone who has implemented a solution from either vendor will face astronomical switching costs. Following a fundamentally different approach to productization, Kaazing has formed strategic alliances with many of the industry’s technology and thought leaders, including TIBCO, Informatica and others. The Kaazing Platform can be integrated into a broad range of enterprise environments and can manage data communication to and from TIBCO EMS and RV, Informatica UMQ, VMware RabbitMQ, StormMQ, as well as (yes) IBM MQ Series and Oracle databases and messaging solutions. Where Oracle and IBM offer lock-in, Kaazing offers the freedom to choose.

**4) Not Big Data – Fast Data.** The volume of data has grown exponentially since the dawn of the information age; that is not new. What is new is the magnitude of the cost imposed by online latency. Consider the oft-cited statistic that each additional 100 milliseconds of latency decreased sales at Amazon.com by 1%, and then consider that this was back in 2007! How much more impatient are users today – how much more impatient are *you* as a user today?

The cost of online latency is staggering, and the only way to combat it is with Fast Data. Fast Data is often voluminous, but it is also complex and difficult to manage, blending structured and unstructured information. It is highly transient, making for a “wasting asset” whose value decays rapidly with time; and it is all around us, comprised of information streams that are both endogenous and exogenous to the organization. Fast Data goes well beyond traditional business intelligence, which is ultimately synchronized around the latest run of a data warehouse. The legacy Web and HTTP are poorly-suited to managing Fast Data. The Kaazing Platform was purpose-built from the ground up for precisely that mission.

**3) Revenue growth, not mere cost cutting.** The Kaazing Platform can help organizations reduce expenses in multiple areas including hardware, software and

service budgets; cross-platform development costs; and “lock-in taxes” paid to high-cost vendors. But because it fundamentally alters the way Web applications work, the Kaazing Platform represents one of those rare technological advances that can also enable a company to develop *new sources of revenue*. For instance, one Kaazing customer has already built an eCommerce application that captures revenue from mouse-clicks that were previously unmonetizable, while another has deployed (and charges handsomely for) a real-time logistics tracking system that is singularly capable of identifying security risks among a carrier’s fleet. Across industries, there are early-mover advantages awaiting companies that are quick to recognize the full promise of the Living Web and the game-changing potential of the Kaazing Platform.

**2) Keeping up with mobile.** Industry watchers expect that billions or even tens of billions of connected devices will come online in the next few years, and that the level of device heterogeneity will make today’s landscape look homogeneous by comparison. Like the legacy Web itself, middleware solutions from Oracle and IBM were never designed to deliver the cost-effective cross-platform support – to say nothing of the performance, latency and scalability characteristics – that this brave new world demands. Built as they are on the bedrock of HTTP and other “ancient” (in Web terms) technologies and architectural approaches, mid-tier layers from Oracle and IBM are bound to sway and eventually topple under the weight of billions of diverse, always-on devices wielded by people (or other applications) demanding guaranteed real-time responsiveness. This mortal challenge can only be overcome by attacking the problem at the bedrock level. Built on the foundation of WebSocket, Kaazing’s is the world’s only platform that will never sway or crumble under this imminent load.

**1) Only the *Living* survive.** The Living Web – dynamic, interactive, always-on, instantaneous – is here to stay. But so are the laws of physics and computer science, and these impose hard limits on the ability of traditional middleware to solve the problems we face. HTTP and the Web of the last twenty years simply will not get us through the next decade. The demands are different, the scales are different, the depth and breadth of user expectations are different, and the stakes are different. The solution to these profound differences cannot be “business as usual.” Yet the incumbent industry leaders, having staked their short- and medium-term future on a technological status quo, cannot be expected to disrupt their own comfortable existence. That is why Kaazing has leapfrogged the likes of Oracle and IBM and why the Kaazing Platform will disrupt the legacy Web and its entrenched players.