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Straight Talking – Banish site slowdowns: How to keep customers coming to your online apps – April 2010

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As the world continues to transact more and more over the internet, the providers of online services have to be more sophisticated in the way they handle demand.

The stress on the applications that drive their websites can be huge: unexpected interest in a new piece of music; predictable increase in tax returns being filed as deadlines approach; the Christmas shopping rush; and charity fundraisers such as the UK's Comic/Sport relief are all examples of increased demand that can bring down sites and disappoint customers.

One way to help ensure high performance, even during varying demand, is to use content delivery services from providers such as Akamai and Limelight Networks. Akamai, the market leader, has 61,000 servers in 70 countries. It can ensure regularly used, static content is stored locally and, through its application acceleration services, improve the speed of online transactions by providing a local point of presence and optimising connectivity between the user and a given target application.

However, if that application itself is unable to handle the volume of demand, there is little a content delivery service can do. During traffic surges it is necessary to increase the resources available to the application itself at the backend - and increasingly that is done using application delivery controllers (ADC) from vendors such as A10 Networks, Citrix, F5 and Zeus.

ADCs recognise peaks in demand and invoke additional application resources. In a virtualised environment this can provision further instances of a given application in the application owner's own datacentre. But increasingly such excess demand is being farmed out to third parties such as Amazon or Rackspace, who provide additional infrastructure on a short term basis, charged by the minute.

The ADC then balances the load across all available resources, ensuring scalability to match demand. It can also divert requests to backup resources, should a default server be down for some reason, ensuring availability.

However, ADCs can do much more than this. They can also shape traffic, for example by compressing data, which reduces the strain on bandwidth-restricted networks. This is especially useful for those connecting to the internet over mobile networks (including those using mobile phones and those using dongles or built-in wide area network capabilities to connect from laptops and e-readers).

Some ADCs also allow the off-loading of compute-intensive tasks from servers, for example encryption (handling encryption traffic can be as much as 20 times more intensive than unencrypted traffic). This is important; many of the services discussed above require payment of some sort and by far the most common payment method is credit card. The payment card industry data security standard (PCI-DSS), that will become mandatory in September 2010, demands not just that credit card data is encrypted but also that applications are certified though a code review or protected by a web application firewall (WAF). Some ADCs also act as WAFs.

Some advanced ADCs and content delivery services can also make a user's experience more personal through the use of geolocation. Knowing what country, city or county a person is in means that local adverts and other information can be displayed to them.

Geolocation services are available from independent providers such as Digital Element or Quova. Such providers are often behind the scenes anyway, for example Zeus partners with Maxmind for its geolocation services. Knowing a user's physical location also allows network traffic to be reduced. For example, a global

retailer may have datacentres in Asia, Europe and the US and can direct visitors to their nearest resource.

Some advanced ADCs also have a rules engine which allows certain transactions to be prioritised at the application level. For example, a customer who spends well at a retail website may be given priority over a new customer, when he returns to the site. Zeus customer See Tickets, for example, uses its rules engine to drive a 'fair queue' system that ensures priority is given on a first come, first-served basis when tickets for a popular event first become available, creating a demand rush.

It is clear that content delivery services and ADCs overlap in a number of ways. In fact, because many ADCs can also be deployed as software out in the field (softADC), rather than as a dedicated hardware appliance in the datacentre, they can also act as local points of presence. This means they can cache content near to the users.

But no one is going to try and re-create a network like Akamai's with softADCs. So the use of ADCs in this respect will only ever be complementary, providing some local capability to reduce the amount of traffic handled, and therefore the charges levied by a content delivery service provider.

There is another potential drawback with softADCs. As A10 networks points out, dedicated hardware appliances are more finely tuned to their task than softADCs. A10 estimates the maximum throughput on its top-end ADC devices as 40 gigabits per second, while the maximum for a softADC on an unspecified hardware/software combination is less than 5 gigabits per second.

That said, the flexibility of softADCs mean you can deploy as many as you like. So the balance between the use of softADCs and appliance-based ones will always be a balance between cost, performance and flexibility.

Whatever combination of devices and services an online provider chooses to use, it is clear that customers should be able to expect a well performing, secure and customised service. Those sites that use the technology available to ensure this will have more satisfied customers and therefore be able to drive more transactions.

With demand increasing as it is, even during a recession, the competitive advantage gains and increased revenue should cover the costs of the required investments.

About Quocirca

Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With world-wide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, mid-sized and small organisations. Its analyst team is made up of real-world practitioners with first hand experience of ITC delivery who continuously research and track the industry and its real usage in the markets.

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption – the personal and political aspects of an organisation's environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

Quocirca research is always pragmatic, business orientated and conducted in the context of the bigger picture. ITC has the ability to transform businesses and the processes that drive them, but often fails to do so. Quocirca's mission is to help organisations improve their success rate in process enablement through better levels of understanding and the adoption of the correct technologies at the correct time.

Quocirca has a pro-active primary research programme, regularly surveying users, purchasers and resellers of ITC products and services on emerging, evolving and maturing technologies. Over time, Quocirca has built a picture of long term investment trends, providing invaluable information for the whole of the ITC community.

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