Arrested Development Season 4 Premier: Why Netflix Isn't Worried
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Why Netflix Isn't Worried About Surges in Traffic During the Season 4 Premier of Arrested Development

Diehard fans of Arrested Development are champing at the bit for the upcoming Season 4 premier, to be released exclusively on Netflix. All episodes will be delivered simultaneously this Sunday, May 26 at 12:01 a.m.

The excitement of devoted AD fans is matched only by the nonchalance of Netflix itself – from a technological perspective. Online service providers that rely on traditional data centers would suffer understandable anxiety about the potential crashes involved with massive surges in traffic. But Netflix views its cloud-based architecture – which has been in the works since it started streaming videos online in 2007 – as more than up to the task.

"We use the Amazon Web Services (AWS) cloud to deliver our interface, and we use Content Delivery Networks (CDNs) for the video," said Joris Evers, Director of Global Corporate Communications at Netflix. "So everything you see when you're firing up your Netflix app gets delivered through the Amazon Cloud."

But, he added, "at the moment you hit Play, it gets delivered through a Content Delivery Network, not through the Amazon cloud."

The cloud and CDN are both designed to scale, said Evers. "We know how many members we have and we're ready for them to watch things all the time. Whether they watch Arrested Development, How I Met Your Mother, Vampire Diaries or Walking Dead, it really doesn't matter."

Part of Netflix's confidence in managing releases comes from experience. It has a tested plan in place to ensure that users receive great video quality and reliable streaming. During events like the AD Season 4 premier, a team of Netflix employees from various groups within the company meets in what they call the 'War Room.'

"People from a number of different groups are present to make sure everything goes well," said Evers. "They make sure the title is up when it's supposed to be, that it looks good on the service and that people are able to stream it. That's basically it."

Yet unanticipated problems can undermine even the most robust system. Last Christmas Eve, for example, a human error at AWS temporarily disrupted the holiday viewing plans of thousands of Netflix users.

"Someone at Amazon had incorrectly programmed a load balancer that basically sent traffic into a black hole, which is not a good thing," said Evers. "But generally we are very proud of the up time. We are mostly available all the time and streaming quality is very good. That's one of the things that we've worked very hard to perfect over the last several years."

Attribute that outage to the unreliability of the cloud if you want. But the same error could have taken place at an in-house data center. And if it had, all of Netflix's customers in the US, Canada and Latin America might have been locked out, rather than users in a limited number of areas. Several factors prevented the

outage from going hemisphere-wide: The distributed nature of AWS data centers and CDN hosts, the technology Amazon has developed to enable the restoration and replacement of servers and Netflix's own impressive array of cloud management tools.

Evers noted that Netlix was among the first to pioneer tools and software for the cloud.

"We built a platform on top of what Amazon provided to make a service like Netflix possible to run in the cloud," he said. "In doing that, we built a bunch of tools and software that runs on top of the basic Amazon platform to make it more robust and manageable for us."

Netflix has made several of these tools available through an open source platform. Security, performance and monitoring tools can be downloaded from Github under open source licenses. These tools are not just useful for video streaming services, but for anyone interested in joining the collaborative cloud development community.

Netflix has open-sourced nearly two dozen of its in-house developed tools at Github. Evers said that Netflix considers its participation in open source cloud development essential to the future of cloud computing. For those interested in upgrading their servers, he offered the following advice:

"One of the things we would say is that if you're moving to the cloud, it's not about forklifting applications from your data center into somebody else's data center and calling that 'the cloud.' It's really about building what we call cloud-native applications. So you build applications that are able to take advantage of the benefits of the cloud."

Such benefits include elasticity – or the ability to scale up and down based on current traffic demands – as well as potentially significant savings for businesses. With data center servers, businesses must pay for the highest expected levels of traffic at all times, whereas AWS customers like Netflix can allocate funds as-needed to support a vast network of servers for which it pays an hourly rate.

“If you do it right," Evers added, "you prevent things like what we had in the early days of Twitter, where you saw 'whale fails' all the time."

That agility is going to be needed even more going forward. The advent of original content like Arrested Development, Lilyhammer, and House of Cards on Netflix has brought a return to the giddy days of early 2011, when total subscriptions were growing by the millions every month.

TechCrunch reported in April that Netflix had announced the "net additions of 2.03 million subscribers in the US compared to 2.05 million in the last quarter – which historically is the strongest period of subscriber growth – and 1.74 million in last year's first quarter." What's more, Netflix’s domestic streaming contribution margin increased to 20.6 percent last quarter, which amounts to an increase of 140 base points from the previous quarter.

At this point, potential impediments to Netflix's growth may be the capacities of the CDN's on which it relies, and perhaps even of Amazon, to support its voracious appetite for growth. It’s also important to consider the bandwidth all those new customers will demand of cable and DSL providers.

Nevertheless, those challenges are insignificant compared to the cost of maintaining an in-house IT infrastructure. In terms of both capacity and efficiency, Netflix’s cloud model far outstrips traditional content delivery frameworks.