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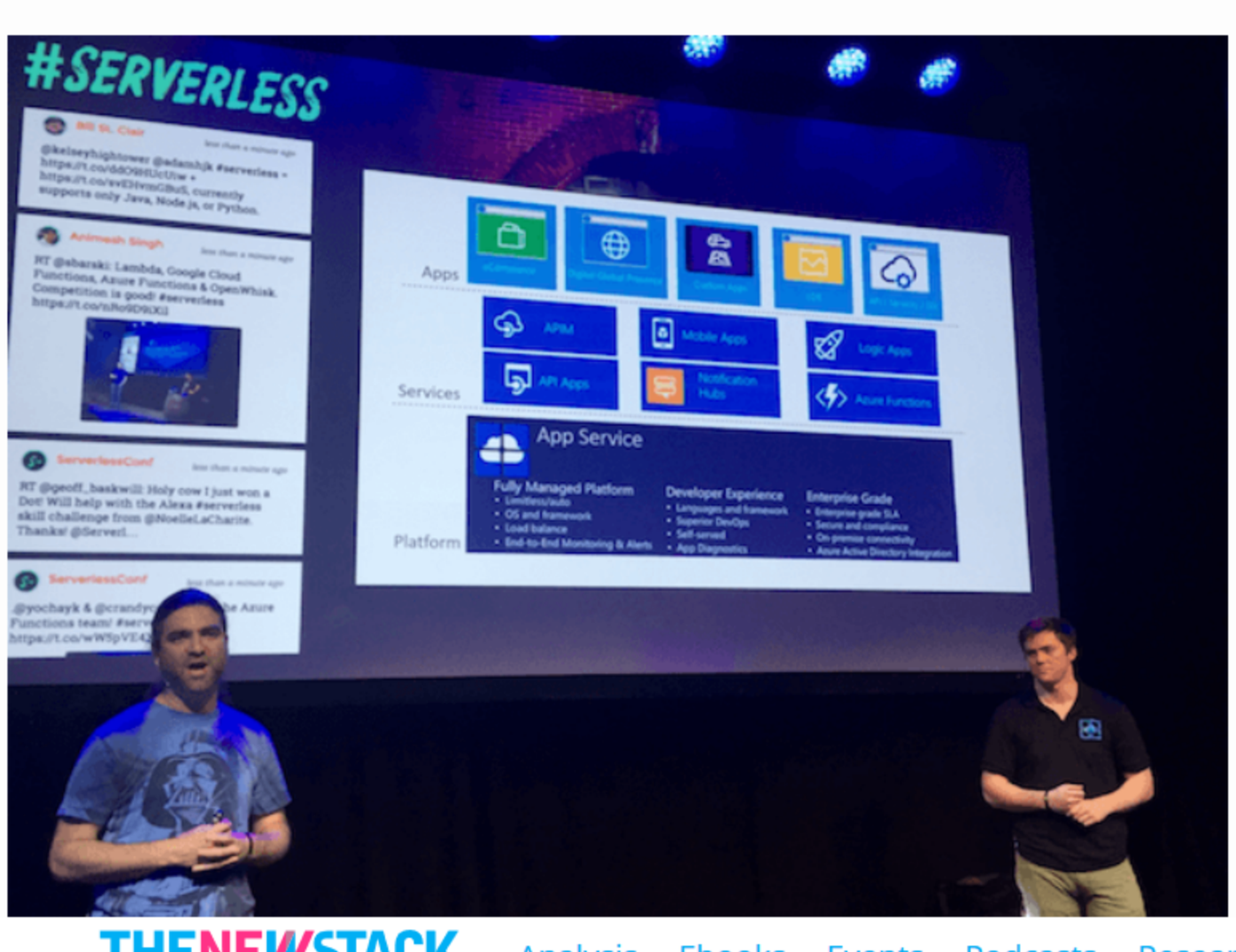
Serverless Computing Use Cases: Image Processing, Social and Cognition

1 Jun 2016 8:05am, by Mark Boyd



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When it comes to the emerging technology of serverless computing, image processing is rapidly becoming a killer app, at least for demonstration purposes anyway, to judge by the presentations at last week's ServerlessConf in New York.

From the show, it appears as if the bulk of early adopters of serverless are currently startups, which are already building full value chain applications using this emerging application development paradigm. Meanwhile, the enterprise seems to be showing early interest in adopting to serverless for specific workflow processes and to trigger and manage automated actions.

Amongst both startups and enterprises, image processing has emerged as an early frontrunner in the serverless use cases, particularly when coupled with some form of cognitive analysis such as object or facial recognition. Serverless applications being built also tend to have some form of social networking component.

To kick off the conference, Tim Wagner, general manager of AWS Serverless Compute, had highlighted image processing as one of his most interesting use case areas for serverless.

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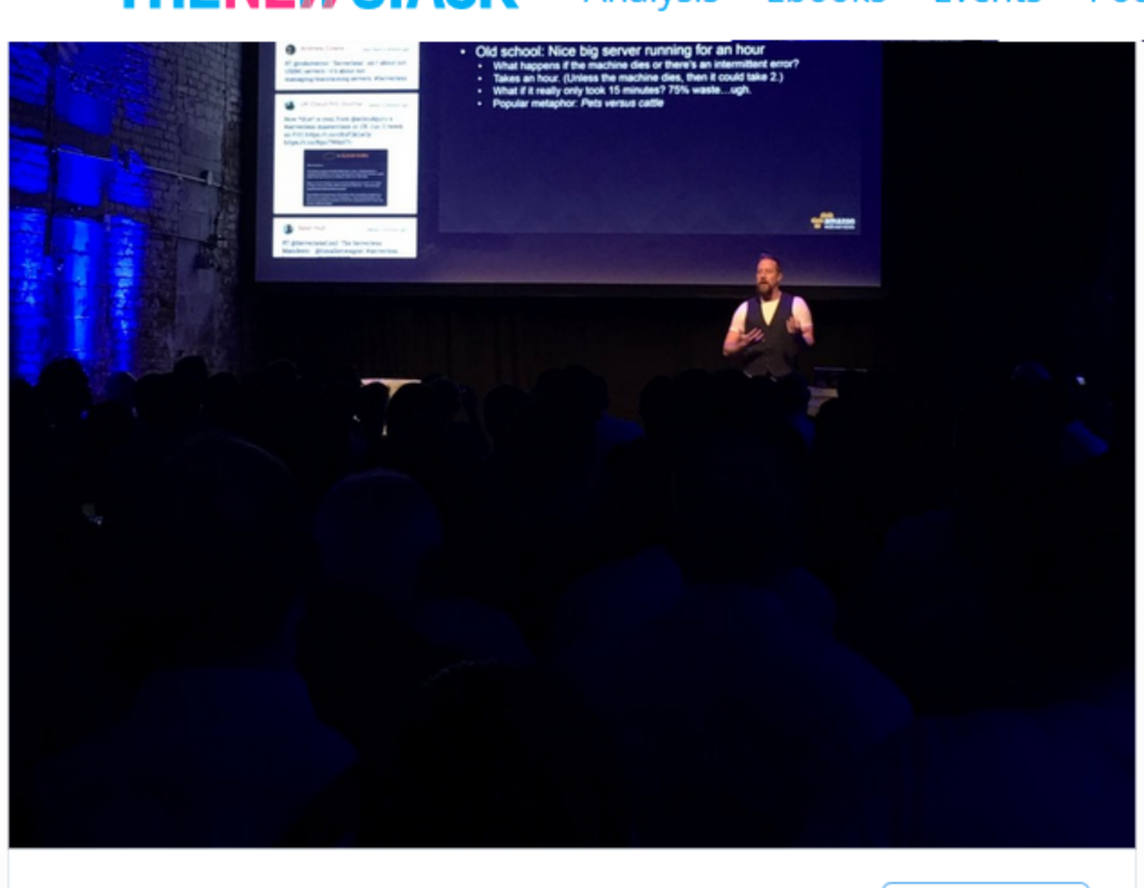

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#serverless is the drive-thru model: "You pay for the hamburger not the cow"- #AWS @timallenwagner #serverlessconf
4:35 PM - 26 May 2016

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The rest of that day offered some further examples: IBM's serverless tool OpenWhisk, that runs on Bluemix, demonstrated a use case with a drone taking aerial photographs and then using cognitive APIs to analyze data in those photos. Andrew Trice, developer advocate at IBM Cloud, says that this is

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Trice says that drones taking images and immediately processing them applies to the enterprise today in infrastructure inspections, documenting flood and fire risks by insurance companies, search and rescue activities, and is being used in precision agriculture to map and survey fields efficiently.

Mitch Ruebush
@mruebush

Well, #serverless is just #paas for event driven architecture
5:16 PM - 26 May 2016

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To date, Trice does not see a full serverless business solution emerge from that use case. Enterprise is interested in one or two steps of the full process: using drones, taking images, and storing those images in cloud storage, for example.

The full business solution hasn't yet made it to enterprise, though: "Basically, any time you write data to Cloudant, we can invoke actions that automatically trigger an image replication process, syncs that to the cloud, launches IoT sensor readings, invokes OpenWhisk and then the Watson functions. But this is so new; no one is asking for this so far," Trice said. "What becomes so interesting is that as soon as I showed it to GBS, they said we have customers asking for this right now."

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environments. One of those, CommercialSearch, is a commercial real estate listing site that at its core is a combination of image processing and social functions that enable users to upload or review property listings, make comments or save their searches. Both that application and a second startup that takes property listings and creates look books (more image processing tasks) are built using a range of third-party APIs and serverless infrastructure including Algolia, Netlify and Google Firebase.

Day two started with two further image processing examples: Dr. Don Ferguson, co-founder and chief technology officer at SparqTV and formerly an veteran at IBM, Microsoft, and Dell, described the serverless application architecture behind his current project, a video content platform with functions including user accounts, social commenting components like ratings, advertising, and interaction elements that allow viewers to connect directly with content creators.

This was followed by a presentation by Google's Firebase advocates Mike MacDonald and Frank van Puffelen — straight off the back of a launch at I/O last week where Firebase has become "a suite of 14 or 15 Firebase products: storage, app invites, crash reporting, testlab and others that help you build your user base and help you make money," said van Puffelen. They demonstrated building a serverless app that uploads video to cloud storage, creates stills from each frame, stores those in the same cloud storage, and applies cognitive machine learning for object and facial recognition.

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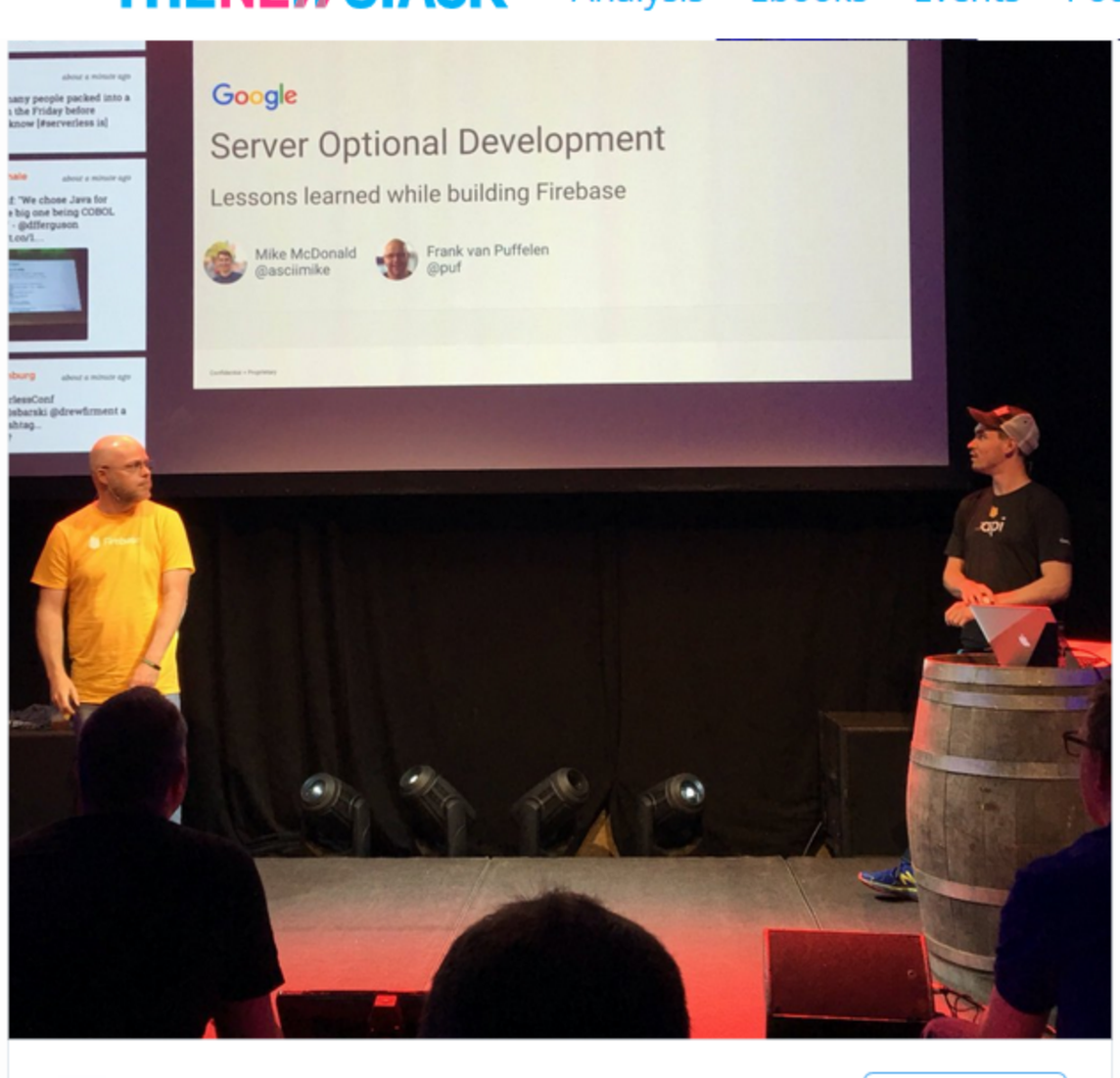

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The original secret sauce of @Firebase: you don't query the database, you listen for changes in the tree #serverless
5:01 PM - 27 May 2016

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Similarly, Yochav Kiriaty, principal program manager at Microsoft Azure, says

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scenarios we are seeing where customers are using serverless with image processing, and any actions that involving reacting to events, such as changes to items in storage, or in databases."

Kiriaty describes: "Azure Functions can trigger actions out of a stream of data, run cognitive services and image analysis, and use custom business logic and trigger further actions. The output of all that can be put in Azure Storage could kick off another function which figures out what is the next step to take. And you can tie all of that together using Azure Logic Apps to orchestrate all of that and maintain statefulness of the workflow."

Serverless Becomes Permissionless

But like Trice, Kiriaty says that there are few enterprise use cases to date that are building that kind of full business solution in a serverless environment. Instead, enterprise is interested in leveraging serverless to carry out specific tasks: "Image processing and content processing and doing any content manipulation in the background is very common. Storing an image and then resizing it, putting it back into storage is a good example," Kiriaty said.

So what is emerging here today is two streams of uptake for serverless: startups are gaining a business advantage by building fully functioning apps that daisy chain APIs together to create an application, like SparqTV and CommercialSearch. Amongst enterprise, the focus to date is more on specific tasks, much like the way Iron.io is seeing traction amongst business

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Tech analyst James Governor from RedMonk says that what this is all demonstrating is the move to a permission-less industry landscape. Staff within an enterprise are encouraged to sidestep asking for IT permission to build new workflow tasks and are leveraging serverless to create innovation and efficiency opportunities. Startups are leveraging serverless to gain permission for their business models that doesn't require venture investment for them to build a viable business. A Cloud Guru demonstrated this in its presentation: offering video training on a learning management platform (again, image processing and social network functionalities), completely in a serverless environment, has grown into a viable business where business costs are only incurred when customers buy a training course.

Serverless is reducing application complexity and lowering the barrier to entry, and accelerating development by startups and business units outside of IT departments. In Governor's mind, this new application development paradigm is demonstrating the power of innovation: serverless becomes permissionless.

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