

EXHIBIT 48  
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## Message

**From:** Kevin Scott [REDACTED]  
**Sent:** 3/7/2018 11:42:49 PM  
**To:** Marc Tremblay [REDACTED] Brett Tanzer [REDACTED] Satya Nadella  
[REDACTED] Marc Tremblay [REDACTED] Brett Tanzer [REDACTED]  
Satya Nadella [REDACTED]  
**CC:** Jason Zander [REDACTED] Corey Sanders [REDACTED] Henry Sanders  
[REDACTED] Mike Neil [REDACTED] Jason Graefe [REDACTED]  
Joseph Sirosh [REDACTED] Doug Burger [REDACTED] Harry Shum  
[REDACTED] Nagraj Kashyap [REDACTED] Peggy Johnson [REDACTED] Todd  
Holmdahl [REDACTED] Scott Guthrie [REDACTED] Jason Zander  
[REDACTED] Corey Sanders [REDACTED] Henry Sanders [REDACTED]  
Mike Neil [REDACTED] Jason Graefe [REDACTED] Joseph Sirosh  
[REDACTED] Doug Burger [REDACTED] Harry Shum [REDACTED] Nagraj  
Kashyap [REDACTED] Peggy Johnson [REDACTED] Todd Holmdahl  
[REDACTED] Scott Guthrie [REDACTED]  
**Subject:** RE: Info ahead of your call with Sam Altman tomorrow

This seems like something that in success (which by no means is guaranteed) would be competitive. The service credits idea for partners sounds useless. Satya, one of the big questions I would have for him is whether or not they intend to make the hardware and software open source in the original spirit of OpenAI. IMO that would be good competitive insurance and something that might be worth funding. I wonder if the big OpenAI donors are aware of these plans? Ideologically, I can't imagine that they funded an open effort to concentrate ML talent so that they could then go build a closed, for profit thing on its back.

K

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Kevin Scott

CTO, Microsoft

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**From:** Satya Nadella  
**Sent:** Wednesday, March 7, 2018 6:22:02 PM  
**To:** Marc Tremblay; Brett Tanzer  
**Cc:** Jason Zander; Corey Sanders; Henry Sanders; Mike Neil; Jason Graefe; Joseph Sirosh; Doug Burger; Harry Shum; Nagraj Kashyap; Peggy Johnson; Kevin Scott; Todd Holmdahl; Scott Guthrie  
**Subject:** RE: Info ahead of your call with Sam Altman tomorrow

Adding a bunch of folks to cc.

Will let you know what I learn from Sam.

In terms of our current play here:

1. Its NVidea for now.
2. We are working with Graphcore for training; and going to use FPGA for Inference
3. Then we have Todd's project

Is this it? If you can send me a link to your roadmap/slide deck.. that will be helpful. Thx.

Sent from Mail for Windows 10

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**From:** Marc Tremblay  
**Sent:** Wednesday, March 7, 2018 11:00:24 AM  
**To:** Brett Tanzer; Satya Nadella  
**Cc:** Jason Zander; Corey Sanders; Henry Sanders; Mike Neil; Jason Graefe; Joseph Sirosh  
**Subject:** RE: Info ahead of your call with Sam Altman tomorrow

At the end of the day, if they build a vertically integrated stack for AI Training and if we all have the same Nvidia V100 systems, it will be a cost war. We are planning to be first at offering differentiated hardware for training (e.g. Graphcore) which they can also use for inference, and then follow with a Microsoft optimized/specific chip (and branded as such) in 2020. Google will obviously play its TPUs card. On that topic, new performance/\$ numbers came out this week vs. the V100 on ResNet 50 and Inception (both CNNs), the price to run these neural networks on TPUs are ~20% better than using V100 instances on AWS, their cost is lower though.

Best, - Marc.

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**From:** Brett Tanzer  
**Sent:** Wednesday, March 7, 2018 9:51 AM  
**To:** Satya Nadella <[REDACTED]>  
**Cc:** Jason Zander <[REDACTED]> Corey Sanders <[REDACTED]> Henry Sanders  
<[REDACTED]> Mike Neil <[REDACTED]> Marc Tremblay <[REDACTED]>  
Jason Graefe <[REDACTED]> Joseph Sirosh <[REDACTED]>  
**Subject:** Info ahead of your call with Sam Altman tomorrow

Hi Satya,

Sam reached out to me yesterday ahead of your call tomorrow, below is a summary of what he is planning to discuss with you.

They are planning to launch a new commercial venture aimed at delivering a vertically integrated AI training hardware and related services into the market.

- The service will contain custom developed hardware, optimized for a core set of AI algorithms, that will be available to service users, for scenarios including Reinforcement Learning, Traditional AI and others
- They are focused on raising funds or establishing a partnership with Key Cloud Providers and major tech companies - other than Google.
  - They have a model in mind where investors get service credits, vs. profit sharing I assume, as most of the companies they talked to want access to the technology more than revenue growth
  - Rumors around DeepMind spinning out of Google and becoming a competitor to this service are why they are not inviting in Google at this point
- Sam knows that we are also discussing what it means to build a vertically integrated AI stack here at Microsoft. OpenAI has a relationship with Graphcore, and other emerging hardware and software companies in the space
- My feedback to him was:
  - It sounded very interesting, interop with our tech stack, tools, and Onyx would be key
  - It is worth exploring what it meant for Microsoft and OpenAI to do this together as partners or a joint offering
  - From an Azure perspective, I could see a tight partnership here, given our bare metal investments, the fact that there is mutual IP, and a path to drive usage and consumption on Azure if deployed there – These were the challenges preventing us from broadening our sponsorship for OpenAI – No path to convert sponsored research into commercial gains
- Internally:
  - This could accelerate or bootstrap, an Edge to AI cloud Silicon and Service offering from Microsoft, if their IP is real and differentiated.
  - Their work in robotics and AI in the cloud will end to end scenarios.

- o I'd rather have them as an ally than a competitor, and be able to steer their research towards enterprise scenarios if possible.

On our current arrangement, just so you have the latest at hand

- They are proceeding with moving their Ocean project to Google
- They will continue to keep work in Azure and remain our partner, likely their robotics work will likely stay.
- We are just starting to work through the Transition PR – They maintain that they want it to be positive, and have told Google that they are just one of many partners that they work with, and that we should make sure the market knows the partnership is continuing
- We indicated that we would extend the discount up to a month if necessary to keep their research flowing. We have to get the contract reved to accommodate and that is in progress.

Please let me know if you have additional questions. I am planning to follow up with Sam and get more details but it will be after your call.

Brett