

# TECHONOMY NYC

## Bringing the World Online

### Speakers:

Nathan Eagle, CEO & Co-Founder, Jana

Erik Ekudden, Chief Technology Officer, Ericsson

Rangu Salgame, CEO & Chairman, Princeton Growth Ventures

### Moderator:

David Kirkpatrick, Techonomy

(Transcription by [RA Fisher Ink](#))

**Kirkpatrick:** Now we're going to not talk as much about 5G, although I think it will enter in here. So joining us onstage is Rangu Salgame, a good friend.

**Salgame:** Hey David, good to be here.

**Kirkpatrick:** And Nathan Eagle, who I've known also for a long time.

**Eagle:** Hi there.

**Kirkpatrick:** Now, Rangu is currently the chairman and CEO of Princeton Growth Ventures but really in my mind he's sort of one of the great telecommunications industry leaders, has worked at Cisco for a long time, most recently at Tata Communications. Now he's investing in telecom, but he's been in that industry for decades and decades, right?

**Salgame:** It shows.

**Kirkpatrick:** I have the same, don't worry. Nathan, on the other hand, is somebody who emerged out of the MIT Media Lab, built a company that is really very much focused on bringing people into the internet who could not otherwise afford it. His company is Jana. He'll tell us about that in a minute. You already know Erik.

So what we're talking about here is what for us at Techonomy and for me personally is a subject of some passion, especially if we are trying to achieve the Sustainable Development Goals. We're not going to do that unless everyone in the world has the luxury of experiencing what we all take for granted, which is constant, complete connectivity. That's the way we all live, it doesn't need to be said, but it's shocking for those of us—I mean, it would be shocking if more of us thought about it to realize that there are still several billion people who have literally

no connectivity at the same time that we couldn't imagine moving our little pinky without being connected. So that's what we're here to talk about. So maybe I should start with you, Nathan, because you did an intake of breath when I said that. But you're devoting your whole life to this. Why is that?

**Eagle:** Look, I think that there's just massive opportunity here. From a business perspective, I mean, we've never seen this type of economic growth in human history where for large internationals to stay relevant—everyone knows their future earning and revenue growth is not coming from this country, and certainly not coming from Western Europe. You know, to win, you have win in markets like India, markets like China, Africa. And what's going on in those markets is that you've got this rise of this emerging middle class of consumers and you've got this rise of emerging class consumers coupled with the fact that you've got now near-ubiquitous cellular connectivity, in terms of people—people are living under the spectrum of some type of data connection.

**Kirkpatrick:** I think 93 percent, is that the number, Rangu?

**Salgame:** Ninety-two percent.

**Kirkpatrick:** Ninety-two percent of the world is covered by at least the 2G signal that will carry data.

**Eagle:** I mean, it has a huge potential to be massively empowering. And that coupled with the fact that you can buy an Android phone right now for under \$25 in virtually every capital city in these major emerging markets has meant that suddenly now what used to be considered a supercomputer can now be in the pockets of just an extraordinarily large number of people.

Now, the challenge here is that, while you've got all these rising tides, the price point of data has meant that there's a huge swath of the population here that is not able to consume all the data that they want to consume. If you're making minimum wage in a market like India, you have to work for upwards of about 12 hours to get a one-gig data plan. In Indonesia, it's 17 hours. If you're making minimum wage in Nigeria, you have to work for 28 hours to get one gig of data. In Brazil, it's 33 hours. So what's striking is that is you look at a market like Brazil, more than half of all smartphones aren't connected to the internet. They're being used like dumbphones. And it's not because people in Brazil don't understand the benefits of the internet. It's because it's cost-prohibitive. And in my mind, that is tragic. We've got all of this amazing technology and it's now being distributed, but it isn't being used to fulfill the potential that I believe it has.

**Kirkpatrick:** Okay. So quickly describe what Jana is doing about that.

**Eagle:** So what we're trying to do, we have a mobile web browser and what our browser enables people to do in these different markets is surf the web without incurring cellular data costs. We started the company 10 years ago; we've integrated now with our 311th mobile network operator, we have operations in 92 countries, and the value proposition we provide the

billion-plus people who have Android phones in these markets is that suddenly now they can surf the web and not have to be constrained to the price point that the carriers are setting for the price of a megabyte. And the way we do that is through things like partnerships with companies like Microsoft, where we're getting people introduced to Bing, which turns out to be not as bad you may think.

[LAUGHTER]

That's not the best tagline. But it actually is pretty good. Our largest customer is Amazon and so we're—

**Kirkpatrick:** So they're an affiliate. You have an affiliate model with those companies.

**Eagle:** Right. And obviously advertising. And you start aggregating the revenue that we can make and it turns out that we can make more money from these different revenue channels than it costs us to provide these people with free internet access. So our mission is to provide a billion people with free internet. You're not going to do that by looking for handouts from the Gates Foundation or the World Health Organization. You have to build a sustainable business, and we're at the point right now where we're a twentieth of the way there. We've given free internet to about 50 million people thus far and I'm pretty excited about the fact that we're going to hit a billion within the next four years.

**Kirkpatrick:** And that's after building this network for a very long time but only actually launching this business fairly recently, right?

**Eagle:** We launched the web browser in March of last year. It's been a long road.

**Kirkpatrick:** So basically, it's an ad-supported network but you avoid the whole network neutrality problem because you're not limiting people's ability to do anything, but if they do certain things that you encourage them to do, that pays you some money.

**Eagle:** That's absolutely right, they get access to all content on the internet, but if they buy something on Amazon, then that covers some of their data cost. And in many instances—we had a guy last week who bought a flat panel TV in Delhi. That covered the cost of the internet for half of his community for that day.

**Kirkpatrick:** Really?

**Eagle:** So it's interesting to start seeing how these models—

**Kirkpatrick:** So you can share it with your friends?

**Eagle:** Well, basically, we earned a bunch of money from that single individual. The money that we're making goes back into essentially subsidizing the internet for people in those communities.

**Kirkpatrick:** Wow. And I know, your secret sauce technology, real fast, is the back-end integration with the carriers that he's done in order to enable this is very sophisticated technically. And that's maybe a segue to Rangu, who's an expert in that sort of thing. But first of all, how do you think about this whole issue, anything Nathan said, and what are you doing?

**Salgame:** Yes, David, as you and Nathan articulated, the growth of the mobile and internet connectivity in the emerging countries, developing world, what we saw a couple of years ago was as what we called the next three billion coming online, the top billion, which is the middle class and the upper middle class in China, India, Africa, were definitely very ready to get online.

But what we saw as the concern is the last two billion or the bottom half of the pyramid, so to say, and the long tail of marginalized parts of this—women, the underprivileged, the poor—and we looked at the problem and said how can we bring this connectivity to this world? Is this a social justice issue, is this a problem that can be solved? Eventually, over a period of time, we did come to kind of a recognition that if this problem is not solved, probably the long tail will be left behind forever. And at the same time, it's not a social justice issue or a development issue. Can we look at it as a business but also at the same time a socioeconomic change simultaneously? So we kind of embarked on this initiative, a number of companies came together, MasterCard, the Tata Group, SoftBank, and others—

**Kirkpatrick:** This is called Next 3B.

**Salgame:** Yes, the project is called Next 3B or the next three billion, but focused on really the marginalized part of the society. We did some research with McKinsey and came to the conclusion, which is not surprising, that affordability was one of the big issues, how can people afford a phone and a data plan in a village in India or Africa or in Central America. And we came to kind of a thesis or a hypothesis that if we can focus on livelihood as the reason for people to come online, then there will be a reason for them be sustained online.

With that thesis, we're kind of learning a lot from the microfinance world about bringing microfinance to women and the underprivileged and how their loan repayment is the highest amongst all creditors. So that kind of model and the learnings we brought in and started doing some experiments in India, Africa, about bringing smartphones to women, particularly focused on women, this project, and bringing financial tools, inclusion tools, and have them find ways to increase their income or first-time livelihood generation because of a smartphone. And if that can be done, then we thought that could be a very powerful way to bring the bottom half online. So that's how the project started and we have a few learnings already coming out of the couple of pilots that are underway.

**Kirkpatrick:** But you're focusing especially—you're mostly in urban areas for the time being. You're really in the super rural places where very few people have connectivity or have any ability to afford it or even want it. But in the meantime, everybody knows about WhatsApp, everybody knows the internet's there, everybody wants it but they simply can't afford it and

they don't realize that if they got it, it could actually help them live a better life and that's what you're trying to help point out to them, in effect.

**Salgame:** Absolutely. The full core is about on the demand side. In the last 10 to 15 years, policymakers have put a lot of pressure on carriers to invest in rural areas all around the world, including the U.S., but what they missed is how do you generate the demand side. Why do people come online, and sustain them? It's not only one time. How do you make sure they're online forever? And so focusing on the demand and the livelihood and we got some interesting results coming out of that already in terms of, for example, women who within three to six months of getting a smartphone in their hand, never had a technology in their hand, they were adept at using smartphones at advanced levels. I mean, even I don't use smartphones that productively. And they were already doing it. I mean, this is such a powerful technology. Then within a few months—these were women, for example, in an India project, they were getting online banking through Aadhaar, the unique identity project in India. And 78 percent of the participants opened a bank account online.

**Kirkpatrick:** Because of Aadhaar.

**Salgame:** Because of Aadhaar and because of a smartphone.

**Kirkpatrick:** Yes.

**Salgame:** They'd never been to a bank, ever. There's no bank in their village. But this connectivity, by the way—so connectivity's not the issue as much. They do all have 2G connections, most of the villages, 92 percent as you mentioned, have connectivity, have 2G coverage so you can do a lot of basic stuff. And with Wi-Fi, if you bring Wi-Fi kiosks in the villages, now you start combining 2G and Wi-Fi, it can bring a lot of powerful tools in the hands of the villagers and the rural communities.

**Kirkpatrick:** Your work is originally around agriculture. You give them tools to be more productive as farmers, which most people there are.

**Salgame:** Right.

**Kirkpatrick:** And just quickly, Aadhaar is a national initiative in India, which now I think over a billion people have registered and gotten a digital identity that's registered with their—what do they call it?

**Salgame:** Biometric.

**Kirkpatrick:** Biometric is the word I was looking for, with their irises, fingerprints, et cetera. Erik, so one of the things about 5G that is interesting that I think relates to this, or you can take it in another direction if you prefer, but from a price per bit standpoint, 5G is way more efficient and affordable, in effect. So will it in itself, over time become a major factor in increasing the affordability of access in these parts of the world where billions are still currently left out?

**Ekudden:** Absolutely. But that will take some time and I think that these kind of initiatives that we talk about, they are really about upgrading 2G to 3G or 4G. There is a fantastic sort of efficiency gain by us going to 3G and 4G when it comes to supporting the data usage of smartphones, and that's actually very cost-efficient to do. So whether it's about upgrading all the existing infrastructure or it's putting some new infrastructure out there, that's really the way to bring it down. 5G, especially when you also need the high capacity, will bring down cost per bit even more, typically 10 times, but again, this doesn't have to wait for a 5G deployment. This is really about upgrading today's infrastructure.

**Kirkpatrick:** But how much will we see a leapfrogging in terms of technology with 5G, just in general? Do you anticipate that 5G will be deployed in a lot of these developing environments fairly quickly?

**Ekudden:** Well, fairly quickly compared to perhaps the old kind of rollout that it took sometime but as I said, now we're going from 2G, more or less leapfrogging 3G, going directly to 4G because of the availability and the cost coming down significantly. And going to 5G in certain areas will also be just a software upgrade in most cases, simple and can be done very fast. But it doesn't need national or full regional coverage to get the benefits of it. What you have in 4G together with 5G is actually the best. So you don't think of 5G of something that comes separately, it's just a natural progression.

**Kirkpatrick:** Oh, I see, okay. So one of the things that's interesting, and I just want to throw it out there for any of the three of you, is that a lot of the biggest players—and it does include Microsoft but I think initially more of Facebook, Google, SpaceX, and others are currently engaged in expensive, ambitious, global efforts simply to deploy connectivity to people in rural and other contexts around the world in a more affordable way. I'd just love to hear all three of you talk about where that stands. I mean, Ericsson was involved with Internet.org for a while. I don't think that's as involved as it used to be, it's more a Facebook-only project now. But how do the three of you all feel about what you're doing as compared to what these global internet giants are doing? Maybe, Nathan, give your thoughts on that.

**Eagle:** It's funny because our PR firm, they keep saying, "We've got a great idea, maybe you guys can launch some balloons and try to provide access that way"—

**Kirkpatrick:** Which Google is doing.

**Eagle:** Which is Google. Or like Facebook launching drones that are shooting lasers across Africa. These are awesome stories that I'm sure people like you love to write about and I love to click on those stories.

**Kirkpatrick:** I have written about that.

**Eagle:** I mean, it's really compelling and it's a great way to kind of get the public aware of I think a real problem. That said, they're a pretty shitty solution to the actual problem, right?

[LAUGHTER]

Like you're not going to solve this problem with drone-shooting lasers. You're going to hire some really awesome engineers and that's cool. But the reality is the answer to the problem is far less sexy. It's about unit economics. It's figuring out how to get the price point of that megabyte down to a point where people can afford to actually purchase it. And in my mind, that doesn't come from really amazing technology, it comes from innovations actually in business models.

And candidly, I think it comes from the fact that right now there's going to be close to \$300 billion being spent on advertising targeting developing world consumers. And that \$300 billion, that's not going into the pockets of Google or Facebook. For the most part, that's going into the pockets of the guys who own the billboards outside of Lagos or the television channels in Delhi or the radio stations in Sao Paulo, you know, the very traditional media. But in my mind, if we could redirect even 10 percent of that spend away from the people who own these giant media companies and redirect it directly into the pockets of the very consumers that these large global brands are trying to reach in the first place, that will cover free Internet access for a billion people. That's the answer. And I think it's pretty simple.

**Kirkpatrick:** It's a classic East Coast technology idea. He's a Boston guy, out of the MIT Media Lab. I honestly think ideas like that are more likely to emerge outside of Silicon Valley, myself. But I'm curious—if either of the other two of you have any thoughts about these mammoth efforts, I'd be curious to hear them. Yes.

**Ekudden:** Well, the quick one on upgrading the networks that I talked about is really that we're doubling from 3.2 billion subscribers that have mobile broadband today to more than six billion. That is part of this equation.

**Kirkpatrick:** By when?

**Ekudden:** In the coming four to five years.

**Kirkpatrick:** Four to five years.

**Ekudden:** Yes, exactly.

**Kirkpatrick:** So within five years, we'll bring like two and a half billion more people online?

**Ekudden:** Yes, absolutely, with the upgrade of the infrastructure that's already there. And then if you pair that with the cost of devices and the new business models, that's a big, big part of the solution when it comes to getting everyone online, but also to be able to provide the right services.

**Kirkpatrick:** Erik, when you hear about something like what Nathan's doing, is that an exciting new approach? Does that strike you as innovative?

**Ekudden:** Absolutely, it is, and I think just the fact that business models have been slow to evolve in this space, I think this and other examples are really great. But the basic fact is that you need to have good enough infrastructure underneath. Some of it will cost so if there is a way to actually pay for it in this way, it makes perfect sense to me. But there's also the fact that you can't build separate networks, whether it's with balloons or it's with the drones, to replace that. That would be perhaps a niche complement in certain areas. Certain distances are better captured or better handled with satellite, for example. That's a good complement but it's not the mainstream. The mainstream is an upgrade to the infrastructure that we have.

**Kirkpatrick:** Rangu.

**Salgame:** A couple of comments. I do believe some of the initiatives that are going on by the West Coast companies, the big tech companies, are important, relevant, like Loon Project, except Facebook, which did its internet out of Free Basics, which I believe was not an appropriate model. It got a lot of backlash in India, in Indonesia, and other parts of the world, for obvious reasons, that it was a very walled-garden approach to get people onto Facebook. But in general, I think the connectivity problem continues to need to be solved. I think the billion people still have no 2G as well. I think Loon and other kinds of initiatives are important to bring that connectivity but I do believe that at the end of the day, in addition to ad-based models, which Jana is doing, I think it's a phenomenal market for the middle market of the middle class that are emerging, but the bottom half has to be solved in some form. And I think that is important and look at what would you be able to do to get them online. I think the demand side of the bottom half is very important. I think that has to be solved in one form or the other. And there's no one kind of staid answer or panacea to solve this but multi-approaches need to be brought to bear in terms of solving this. The poor, the marginalized part of the society, if they can't be brought online, I think we're going to miss a huge opportunity.

**Kirkpatrick:** Right, you talked about increasing inequality.

**Salgame:** Yes.

**Kirkpatrick:** Do we have time for one question? One question, okay. Please, identify yourself.

**Riley:** I'm Susie Kim Riley. So I'm also a fellow entrepreneur from the Boston area. I was the CEO of a company called Aquato and we were acquired at the end of last year by a larger company called Mavenir and we were sort of solving similar problems as what Nathan's company is doing. But what we noticed was actually that Facebook did catch a lot of flak for their Internet.org initiative with Free Basics. It was a walled-garden approach where people had to use the Facebook app in order to actually access content and it was the only app that one could access even if you didn't have a data plan. So it's a similar type of thing that I think Nathan is trying to do with the browser and I'd love to hear your thoughts on if you're getting any flak for taking a similar approach, which is, you know, even users without a data plan can still access the internet through the browser and what the difference is between your approach

and the approach that, for example, Opera Networks or Opera Software has taken with their browser.

**Eagle:** Sure. Well, those are a handful of questions. On us versus Facebook, there's two big differences. One is that Facebook was providing access to Facebook, right? And maybe Wikipedia and some BBC. We are providing access to all content that's available on the internet. And the other thing that we're doing that's fundamentally different is that there's a core architecture difference where what Facebook pursued is something called essentially white-labeling or zero-rating their content. What we're doing is we're actually rebating people.

We're essentially putting money into a prepaid mobile subscriber's account. That money can be used for anything. It can be used to go download an app, watch a video, go to any website that they want to go to. It's truly unrestricted internet access. And when we built the business, we built it predicated on this notion of providing truly unrestricted internet access.

In terms of what Opera's doing, whether it's selling data packs or making the internet cheaper through proxied solutions, we've been looking at those types of models as well and what we found is that users are less inclined—I mean, I think there's something to be said about the proxy model, but in my mind, the trouble that both UC has come into with just the privacy implications associated with storing all of that data has meant that we've decided to back away from it.

**Kirkpatrick:** Well, also it's interesting to note, I mean, in India, there's enormous innovation happening around access. For one thing, Reliance drastically cut the price of connectivity about, what, two years ago, was that? Eighteen months ago. That has dramatically increased the affordability of internet and has dramatically increased the number of people who come online. Meanwhile, there's all these browsers that are mobile-special. Alibaba leads that market, I believe. People don't even know that Alibaba has its own browser—

**Eagle:** And two weeks ago, Amazon.

**Kirkpatrick:** But it's the leading browser in India, right? Amazon has now launched a browser. You have a browser. Opera, which was a European browser that was quite powerful in the mobile space, is now owned by a Chinese company. I mean, this is a space of enormous competition, innovation, and activity with this browser war, particularly focused on India. Is that fair?

**Eagle:** Yes, at the end of the day, browsers have become kind of the Yahoo portal of the late 1990s. People are realizing, or Alibaba specifically realized that all of these users were using UC and by taking UC out, suddenly now they're going—

**Kirkpatrick:** UC is—

**Eagle:** Oh, UC Browser is a browser that now has half a billion MAU, almost exclusively in emerging markets. And Alibaba took them out and suddenly instead of people going to Gmail or Google Maps, they're now going—

**Kirkpatrick:** You mean they bought them.

**Eagle:** Yes, they bought them, took them out. They took them back behind the barn.

[LAUGHTER]

**Kirkpatrick:** Just wanted to clarify.

**Eagle:** And suddenly now, that was half a billion people got ripped out of the Google ecosystems and pushed into Alinews, Alimaps, various Alibaba services. And there is just a massive battle going on between Alibaba—Google is now doubling down on trying to figure out how to make Chrome more accessible to emerging markets. Two weeks ago, Amazon launched their browser for India.

**Kirkpatrick:** Is it only in India now?

**Eagle:** It's only in India.

**Kirkpatrick:** Wow. This is a panel in itself, which we're not going to have time for, but I'm glad you explained that. Thank you all, thank you all three of you. We're really glad to have you.

[APPLAUSE]