# ACCANect 2018

**Session 2: 9:20 – 9:30am**

**The confident consumer: Reflecting on the progress we’ve made and the future, empowered consumer**

**Presenter: Mark Pesce**

**Mark Pesce is an inventor, author, educator and broadcaster.**

**Best known for co-inventing VRML (Virtual Reality Modelling Language), Mr Pesce has written six books, founded postgraduate programs in interactive media at both USC (University of Southern California) and AFTRS (Australian Film, Television and Radio School), and for seven years appeared as a panelist on the ABC’s The New Inventors. Mark Pesce currently hosts This Week in Startups Australia, which has rapidly become Australia's #1 tech podcast.**

*Mr Mark Pesce appears by arrangement with Claxton Speakers International*

JULIE McCROSSIN It's my great pleasure to introduce Mark Pesce and he's going to talk about the confident consumer. Mark is an inventor, author, educator and a broadcaster. He's best-known as the co-inventor of Virtual Reality Modelling Language, VRML, he's written six books and founded postgraduate programs in interactive media at the University of Southern California and our own Australian Film, Television and Radio School. He currently hosts I'm sure more than two, but two Podcasts, This Week in Startups Australia which is rapidly approaching No.1 as a tech Podcast and also the Next Billion Seconds. Please welcome, Mark Pesce. (APPLAUSE)

MARK PESCE: Good morning everybody, thanks for that great bio introduction. One of the things I want you to know about me is that for 35 years I've been an engineer working in telecommunications. I get introduced regularly as a futurist and when people hear the word "futurist" this is what they think. That is a psychic, you can ask them what the lotto numbers are going to be. Now what I'm going to do is I'm going to show you what a futurist does. I'm going to show you a video I have never shown in public before. When you see the video you'll understand why I've never shown it, but I think the video and the message - and remember that at the time this

video was shot I'd already had 30 years of work in

telecommunications - tells quite a story. Can we raise the sound

please on this?

VIDEO:

>> This is actually provable that what we needed maybe 64 kilobits

for maybe back in 1995 we need 6 megabits for in 2011 and we will

need 60 megabits for in 2016 or 2018. I mean, this is charitable,

we know this and unless we can bring that into the household

reliably by around 2020 we're going to be strangling ourselves with

our own broadband cords.

>> Can I just say to you truthfully, you've got to sort of lay off the

Kool Aid with this and get fair dinkum about it. The only application

that will consumer really high band width into the household is a lot

of high-definition video. You tell me what else? What else would it

be?

>> Before broadband came into the household there was no

YouTube, we don't understand those applications yet and if you

don't build out the broadband when those applications arrive you

will have a nation that will be unable to have those applications and

that's the danger of not doing a full broadband roll-out.

>> Okay, you are a notorious self-proclaimed futurist, a visionary.

I'm praising you for that and here you are and you cannot even

imagine that you are incapable of imagining or describing what we

can use -

>> The imagination is not confined to this room.

>> This is nuts. What we should be doing is building a network

that is capable of meeting our demands today and those that we can

see reasonably foresee for a reasonable period in the future.

MARK PESCE: That totally worked out! So that was seven years

ago. Seven weeks ago, I was in Tokyo and I went to the big

electronics neighbourhood in Tokyo to see what was happening,

because you get all the new stuff there and I'm walking through the

largest TV department I have seen in my lifetime and I see this

set-up. In Japanese that says "We're beginning satellite

broadcasting of 8K transmission on 1 December 2018". All right,

now you all know 4K, because we're starting to test 4K

transmission. It's the current gold standard for communication for

transmitting video for Netflix, but in fact, where we're going is 8K

and 8K is the equivalent of having four 4K screens at once, so you

get a lot more data in there, that's roughly how it looks. Now

people go "Mark, what would we possibly need all of those pixels for

already on a 4K screen the image is so eye-poppingly sharp that if

we throw more pixels at it, what could we possibly do with them? "

Well, the Japanese have always been at the lead of this technology

and they've used the fact that the Olympics in Tokyo will happen in

July 2020 as the go-ahead for them to move to 8K broadcasting.

NHK the national broadcaster in Japan has a plan for a staged

roll-out and again, they're starting broadcasting in December this

year so they will be nearly two years into understanding the

technology and the implementation of the network layer of

television broadcasting. But we really shouldn't be using the word

"broadcasting", because in the post-HD era - so high-definition,

which we think of as normal television these days - most 4K

content, most 8K content is not broadcast over the airwaves. It is

streamed over a network connection and this is where the networks

are going now. So we're now at this point where Australia's

networks are groaning under the capacities of 4K content and where

we're about to go with that well, an 8K channel requires at

a minimum this is NHK saying this 85 megabits a second and I want

you to think about that against the built-out broadband capacity in

Australia's network in 2018 or by the time the NBN is finished in

2020. Will it be able to tolerate that kind of normal level of traffic

so that people can watch the Olympics in its full glory and splendour

that the Japanese will be shipping around? Gee Mark that is a lot of

pixels, why would you need so many pixels? What we're thinking of

as video, as a broadcast is changing and it's changing in a number

of dimensions and the first way that it's changing is that it's

becoming immersive. So you may see an 8K projection on a screen

where you have all of the pixels on the screen, or you may see them

inside of something that looks more like a modern-day virtual reality

system where it's not just a screen in front of you, but those 8K

pixels are around you in a full 360 degree presentation and when

you do something that's incredibly high-definition and present it in

something that's completely immersive, then you get something

that has very high fidelity. This is where television is going in the

short-term. This is where television is going as a streaming medium

between 2020 and 2025 and this is something our current

broadband networks will be unable to support. But that's just the

start of where we're going. The next place we're going after that is

something called videogrammetry, that's a brand-new display

device on Kickstarter, they raised a lot of money for it. What's more

interesting is what you're seeing inside of it. It's not a flat display.

As you move the display around, the display actually has depth so

it's as if the thing is being projected inside to the glass, so it's

almost as though you're creating a hologram. It's not a hologram

using lasers or something fancy like that, it's using nice projections

of optics, but it's rendering the display as if it were physically

present in space with you. Now we've had this technology for

a number of years, but it's only just gotten to the point now where

we're starting to see a confluence of research and applications that

are showing us where this is going. What I'm going to do now is

show you a video that came out of Microsoft research two and a half

years ago that shows you exactly where this is going.

VIDEO:

>> Now to make all this happen we've had to create a new type

of 3-D capture technology. I'm surrounded by 3-D cameras we've

developed in our team. We're fusing this data together to create

a model as you can see reinstructed live behind me. The camera

filming me has a tracking system attached and this allows us to take

3-D models and compositing them in real-time into the real world

and that gives you a sense of the fidelity of the reconstructions we

can achieve. Once we have these reconstructions, we can texture

them, compress the data and transmit the data to the other side.

Over on the other side, a user can see remote participants as if

they're co-present and that's what we're showing you picture on

picture. Now imagine using this type of capture technology to

connect with family members who are thousands of miles away and

that's exactly what we're going to demonstrate to you right now.

My daughter is stood in a similar capture rig somewhere in our lab

and I'm going to interact with her using my Hololens.

>> Hi, I miss you. Are you coming home?

>> I'm coming home very soon.

MARK PESCE: So the technology is known as Holoportation. This is

no longer the cutting edge. There are multiple firms including

Microsoft that are putting money into making this technology cheap

and something that's going to represent the next generation of what

you might think of as a Skype call, a normal video call, but the call

will be scanning you in three dimensions entirely, representing you,

transmitting that data to the other side which will also be

represented in three dimensions and so you will have the

appearance of being physically present in the space, not just with

visual fidelity, but with sound as well, because there's a lot of

richness also happening with spatialised audio and objecting objects

in space, but this really about what the eye sees, but capturing the

overall experience. This will lead to the next generation of

broadcasting. You can see what this means for interpersonal

communications, whether you're doing a business meeting or talking

to a member of a family or whatever you might be doing. Let's take

this out and say you're covering the grand final in 2025 or 2026 and

you have hundreds of cameras covering the field simultaneously all

integrating that data to create a real-time 3-D representation of the

play on the field and because of that, you as the viewer can watch

that play from any position anywhere on the field or in the stadium.

That's the technology that's going to be replacing television as we

know it and this is the technology that a lot of money is being

poured into right now. We have no idea what kind of band width

requirements are going to be needed for this, except we know

they're going to be substantial and they're probably going to make

8K video look like nothing at all, because you're going to be

integrating an enormous amount of volume data from enormous

sources in real-time. We're probably going to be viewing these

through spectacles. He's wearing a HoloLens. This month we saw

the release of the Magic Leap One, the first reality augmented

spectacles. They will be a normal consumer item. P&L and Google

and Facebook will be selling them to you. You'll put them on and

they'll integrate the digital world and the real world seamlessly.

This is the way these devices work, because they're contextually

aware of the space they're in and they're aware of what you're

connected to. So we now need to start to think about

a communications future which is not just about Smartphones. It's

not just about landlines, it's not just about broadband, but it's

a much richer sensory experience than anything that we had

thought about it, which is why we shouldn't leave politicians in

charge of broadband planning. But, of course, even if we took

a look at a simple chart, consumer Internet traffic and keep in mind

most consumer Internet traffic is mobile these days, it's not actually

wired broadband, because there's about 4.5 billion people walking

around with Smartphones now and a little over billion who are

access to wired broadband so we have this tremendous demand for

Internet traffic around the world. This is completely predictable, if

you go to Ericsson or Huawei or anyone making switching

technology, they'll be able to tell you what they're predicting for

broadband at any given time. We know how to provision, but we

know there's going to be break-out applications. I've shown you

two of these applications with 8K immersion and videogrammetry

we know these will be front and centre in the same way that regular

video consumption that has become the major aspect of broadband

usage in 2018, we will see 8K immersion and videogrammetry

become major consumers of broadband in the mid 2020s. Now

I live on the other side of Broadway over here in Chippendale and

I'm happy to see the NBN crews have been hard at work and this

paragraph was taken just across the street from my home, about

five weeks ago and I was like "Yay, we're finally going to get NBN

service" and I'm very happy about this and I keep on checking and

it's going to happen some time in the next couple of months. We

have to now start to ask ourselves, what kind of NBN do we have

today? What kind of NBN are we going to need tomorrow for the

kind of applications that are now absolutely clear that will be

coming? And how do we get there, and how do we get there with

the consumers? What happens if the consumers don't get there?

And this is where it gets really kind of pointy. Now everyone in the

room is familiar with Whirlpool? It's well-known. I was introduced

to Whirlpool probably not long after I arrived in Australia in 2003.

It's a place where people who know about telecommunications talk

about telecommunications. Quite often they're people who have

deep experience in telecommunications either in the technology or

in the service side of it and it's a place for them to be able to share

knowledge, to pool knowledge and to actually think through the

correct responses to situations they're involved in around

telecommunications in Australia. Now that's the world of the past.

That's the way we used to do things. What we're going to see

happening quite soon is an enormous shift in how this works and

this enormous shift is going to happen for two reasons that are

colliding. The first is the consumer data right. I'm presuming

there's going to be sessions about the consumer data right here.

This is great. I just spent the last two days working with bankers.

Open banking, which is this new thing the banks are being asked to

do is the leading edge of the consumer data right, where the

Australian Government is going to be requiring complete

transparency and transactional data with all of the nation's financial

institutions. So you will have complete access to all of your

transactional data for any reason you want and you will be able to

give that transaction data to anyone you duly authorise. This is

what we call "open banking". The same thing is going to happen

across several domains and importantly in 24-36 months in

Telecoms so all of your transactional data that whatever provider

you're using now is going to be made completely transparent and

available to you for whatever purpose you deem necessary. This is

going to be a huge change and a fundamental aspect of consumer

empowerment. And again, we're going to do this in stages and

we're going to learn from what the banks are doing with this. The

banks aren't so much struggling with it as they're witnessing the

birth of a new kind of class of applications as new folks come along

to figure out interesting ways to take your financial data and figure

out either how to save you money or make you wealthier or manage

your money better, because they now have access to this

transaction data. When they have access to that data they can

model that data, they can use machine learning and artificial

intelligence on that data to study the patterns in that data and to

see what they can do to improve your abilities with that data. So

where we're going now is we're entering an age of telecoms where

the transaction data becomes a fundamental stream of how we can

now manage our Telecoms generally. And so, all of this data that

the Telecoms providers will be generating and then providing to us

will be going into machine learning and artificial intelligence systems

in order to help us manage our Telecoms better. Now that's going

to be really wonderful for the average consumer on the average

day. What if it's an angry consumer on an angry day? It's an angry

consumer on an angry day that's equipped not only with their data,

but possibly with the data of a whole set of consumers who have

agreed to pool their data towards some sort of end and have used

sophisticated artificial intelligence tools which sounds like rocket

science, but those tools are becoming easier and easier and easier

to use. They're becoming more and more and more common and it

will be easier for people to be able to pool their data, pull things out

of that data, find some signal out of the noise and then deploy that

data and those learnings and the artificial intelligence as a weapon

against a telecommunications provider. Now, if you think that's

science fiction, I gave a version of this talk to some folks who do

customer service in Australia and after I got off the stage a woman

who works for a very large bank indicated that this was already

happening to them, because people are very angry with the banks

so they are weaponising the data streams that the banks are

providing and they're using against them. This is the enormous

danger we're in with an underbuilt National Broadband Network is

that, in fact, what will happen is we will see a class of applications

that will be released that the network will be unable to service and

consumers will find themselves with exactly the tools they need to

weaponise and attack against the infrastructure, because the

infrastructure is not giving them what they need. That's the place

we don't want to end up, so we really need to think very carefully

about how to bring consumers on side in this process. Around

provisioning for the class of applications that we can now see are

arising. Now there is hope in all of this. I chose this image very

specifically. This image is from May of last year. That's KG. KG is

the best greatest human player of a game called Go, the Chinese

2500-year-old board game, playing a computer called Alpha Go built

by Google last year that was an artificial intelligence system. Even

thought it was going to be around the mid 2030s before someone

could beat, and Alpha Go beat him five games out of five. It was

carried live on a feed into China, because he's a Chinese citizen and

the Chinese Government pulled the feed before the last match. This

is him after he lost the game and he did a press conference

afterwards and said "What was it like? " And he said "Kind of like

playing a god". You'd think for KG, that's it, you hang up your go

board, because you're done and the computer can beat the pants off

you. It didn't happen that way. When you're the best human

player in the world, how do you get better? He dusted himself off

and he started using Alpha Go as a tool to make him a better Go

player. So KG was previously the best, the highest ranked human

Go player. He is now possibly the highest ranked player ever in

human history, because he's playing an opponent that can't beat

him. That's one way we can see how artificial intelligence can help

us do things we couldn't do otherwise. We're going to see that as

well as part of the mix in the telecommunications mix, because

when a consumer needs something from a telecommunications

service, it's very possible that they'll employ an AI to help them put

the pieces together to provide the service that they're not getting

from their Telecoms company. That's the kind of tools that we'll be

seeing in the 2020s. But there's another quota to this story. KG

starts to learn from Alpha Go, but there's something else we've

learned. If you take a human and Alpha Go and play against Alpha

Go, who do you think wins? Well it's a computer against

a computer, the person kind of doesn't matter, right? Wrong.

Turns out that a human in Alpha Go will always beat a computer,

because it turns out that the way a human plays go and the way

a computer plays Go are very different and complementary and they

will overwhelm just a computer no matter how good that computer

is and so this has led over the last year to something that we now

call pair play, where you have a human player and Alpha Go against

a human player and Alpha Go and this is what the future looks like

for us. We will be using extremely sophisticated, smart tools that

will help us get what we want in any situation, particularly with

respect to Telecoms. Particularly acutely if the broadband is not

delivering the services that we feel that we need and we'll be

working both with others who will have their own high-end tools.

This machine-human pairing that leads to hyperempowerment and

they'll be working with and against the Telecom's firms who will also

have humans paired with artificial intelligence. It's a very different

future than the one we live in today. It's a very different future

than we could see from the ABC studio in 2011, but it's a future that

we need to prepare for because the one thing we can't have is

a future of angry telecommunications users. And we need to

understand that these tools can be used for good. They can be used

to protect us, they can be used to defend us and they will need to

be and the communications providers who manage to master that

part of the equation, who manage to cut a deal with their users that

says "We will protect you, we will defend you, we will work with you

to meet your service needs and we understand that those needs are

continuously evolving and changing", those are the folks who will

build the deep relationships, the relationships of trust and respect

that will lead to economic success both for the users and for those

companies. Thank you very much. (APPLAUSE)

JULIE McCROSSIN: Mark thank you for a fascinating presentation.

I've learnt so many new words and I've been tweeting like mad.

We've got time for 10 minutes of questions or comments. Who'd

like to go first? Do you want to introduce yourself and guys, I don't

let go of the mic, I hold it near your mouth.

>> Holy, I'm on the board. You paint a picture which is both rosy

and very scary. In Europe they have the data general protection

regime which has recognised the need for a lot stronger protection

and when you started to say "companies will have access to that

data" I got scared. I'd like you to build into your picture a regime

that includes a much stronger piece of legislation in this country and

something that ensures we don't have another Cambridge Analytica.

MARK PESCE: It's very much consent-orientated and I apologise if

I did not stress that. It is about empowering the consumers to do

what they want with their data. But - and this is the important

but - when you give consent to another organisation, this is where

transparency has to be part of the deal. Now the interesting thing is

the banks are totally across that, because the banks have because

of the royal commission have been in such a weakened position they

understand that transparency is the way forward for them. Whether

that's going to be equally true in Telecoms is another matter. This

is where ACCAN has a really positive role to play to point towards

why transparency is going to be important to prevent these

companies from losing their reputations. You can think of it both as

a preserve, but as something that causes engagement. Actually the

more transparent you are, the more opportunity you're offering for

engagement, both commercially and from the consumer perspective

to help people together to build the kinds of things that they can

build off of this wonderful new stream of data.

JULIE McCROSSIN: We have a question here.

SEAN EDWARDS: Sean Edwards, the chair of the independent

review committee. Interested in your comments. You say you

should never leave a broadband roll-out or an infrastructure roll-out,

which is the implication to politicians. Who do you leave it to and

how do you fund it?

MARK PESCE: These are very good questions. I would say that the

provisioning of that network - and that was the essence of the

conversation that I was having with at that time the Shadow

Communications Minister in 2011 - that the provisioning of that

network actually needs to be left with experts and they can tell you

what broadband you're going to need and at what point you're going

to need the broadband and you can figure that out with respect to

your build and figure out what your costs are. That's a normal

business provision. None of that is rocket science. You can go to

a Cisco or a Huawei although we don't like to work with Huawei and

they can give you data-based projections about what your needs are

for a certain set of applications or on the basis of historical

precedent. What I was working with Malcolm was precedent. What

we need to do then is take an approach that accepts that there's

a significant body of research around how telecommunications tends

to grow and also - and this is something I used to use a lot in my

talks - but there's a fairly strong correlation between connectivity

levels and economic growth and it was seen that connectivity, high

levels of connectivity could provide as much as 0.9 per cent growth

in an economy GDP in a given year and so it was a way to be able to

justify a continuing investment in telecommunications infrastructure,

because it would be a consequent productivity growth associated

with that and that could be used to justify a spend.

JULIE McCROSSIN: Could I do a quick one and then I'll come to you.

When I saw that amazing immersive technology, the little girl

coming into the room.

MARK PESCE: Holoportation.

JULIE McCROSSIN: I've already tweeted and yet I don't know how

to spell it. Apart from grief and guilt parents are going to feel,

I thought of the sex industry, the gambling industry and military

application and also gamification, so I guess the real question

is - some of the social impacts that we need to be aware of, with

such extraordinarily powerful technology and the impact on human

emotion.

MARK PESCE: I wrote about this extensively last year.

A publication out of the University of Melbourne, this is freely

available called the Last Days of Reality and it looks at this front and

centre along the context of the fact that one of the companies that's

principally driving this is Facebook and Facebook is going to hook it

to their analytics engine that uses AI to profile you to make sure

you're seeing things in the feed to keep you glued to the screen.

They're going to do that with what's going on with augmented

reality. What I wanted to do is highlight this is now technically

possible so that we could then be ready to encounter it with

whatever both policies, but also cultural attitudes around this. Now

one of the things that was interesting just this morning I saw in my

feed - not Facebook, LinkedIn - that in fact the latest numbers from

America show a quarter of Americans have deleted the Facebook

app in the last year because of Cambridge Analytica. You're seeing

a social change around how we're engaging with social media,

because people had become more sensitised to all of the aspects of

it. Now my feeling as a futurist is that we should have some scope

for understanding what can go both right and wrong and so we don't

want to be Utopian. You saw on both sides, I suppose a Utopian

side to the talk, here's a nice future, here are some of the edges of

that future and you have to accept that both of these are the price

of playing the game.

JULIE McCROSSIN: Thank you.

>> My name is Abbey and I'm from Telstra. You've spent a lot of

that talk talking about how inadequate the NBN is and the

infrastructure to support this emerging technology. How do you see

us accessing this technology in the future if the NBN can't support

it?

MARK PESCE: Look, the NBN - and again, in my professional

capacity as someone who has 35 years in telecommunications

should just be fibre full stop and then we don't have to worry and

we can do whatever we need to do at the various distribution nodes

to raise band width. If we had a gigabit coming into every

Australian home we would be future-proofed for at least a decade

probably. We don't have that, in fact we're quite far from that.

That was the part of the missing conversation before we sort of

dropped into that was I was advocating for this. It would have been

very expensive. We all know $80 billion which is the final price tag

anyway, blah, blah, blah. We needed to futureproof and fibre is the

right way to futureproof. There's no argument about that. It's

going to be an interesting issue around 5G most of these augmented

reality devices will be using mobile broadband and that will place

enormous demand on networks even the ones we're using now. We

don't really have a strong sense of how to provision for that yet.

You probably are thinking very deeply in the Telstra labs and in the

CTO's office around that, but you can scope it and start to say, and

that's not going to be 5G, we're talking 6G so to the mid 2020s what

the average broadband coming into a headset doing something

similar to a Holo transportation task will be. It will work better

when connected to high-speed broadband. The same way Skype

call is better at home than mobile broadband. We're going to be

thinking about all those different things. The people developing

those applications will probably be developing them so they decade

gracefully to deal with difference kinds of traffic. It's a solvable

problem, but I do think that we can't overlook the fact that we can

clearly see on the horizon there are at least two glasses of

applications that are enormously band width intensive, one of which

is interactive.

JULIE McCROSSIN: We've got time for one more question. I want

to know if I'm the only person in the room seeking to degrade

gracefully!

>> I represent the Australian digital and telecommunications

industry. My name is Cosmo. The data which is becoming hungrier

and hungrier, do you think it will jump out of the fibre and be

delivered via a satellite platform? There is a subscription television

provider that's made an announcement recently for the first time,

4K and second to that question -

JULIE McCROSSIN: Go one first.

>> It is relevant, is the compression techniques to better use the

capacity.

MARK PESCE: Okay, the answer is it's always going to be a mix and

for some things broadcasting is always going to be a nice go-to for

this. We seem to have evolved into an era of television standards

where we can change codecs as we need them everyone has moved

to H264 and will move to 265. We seem to be getting into a flexible

television network where what's coming over from a satellite is

indistinguishable from what's being streamed. We're in a world in

on-demand consumption. We have a mix of broadband and

on-demand. You can blame Netflix mostly for this, and YouTube.

So what we're going to see is both of these being required and so

for certain kinds of broadband events whether that's a grand final

that's being Holocast or whatever you want to call it in 2025 that

may be consuming the equivalent of 4, 5, 8K channels, but coming

over a broadband or satellite channel into some device in the home

that's managing them. Yes, I can absolutely see that. That will be

part of a mix of other technologies.

JULIE McCROSSIN: Here Mark, our last question.

>> My name is Wayne Hawkins thanks for your presentation.

Fascinating. The question is around the open data. I got a little lost

when you were talking about the angry consumer on an angry day

with access to that data weaponising against the provider. What

does that mean "weaponising against the provider"?

MARK PESCE: I'll give you an example from Facebook. It uses your

interactions with Facebook to weaponise its interface to make its

interface as addictive as possible. When I say "weaponising it"

I mean using it for ends that would be inimicable to your own

well-being. A consumer can weaponise your data against a bank

right now. We're seeing this happen. With open banking they're

going to be able to do it with their entire transaction scheme. They

might be able to weaponise against a retailer or some other

institution they can get transaction data. Whenever you have

a stream of data - and it has to be a really dense stream, like

there's a lot of data - you can start to model that data, you can use

machine learning with that data. You can start to use predictive or

reductive analysis, start to pull signals out from that. Those signals

can then be deployed against the organisation and in the case of the

bank it was a form that was being filled in. So much so that it was

basically causing the bank to jam up, because it was a complaint

form and someone had figured out how to fill in the complaint form

three times a second so the entire system was shut down. You

think "That's fine, they're going to turn it off and find a way around

it", but the angry consumer will adapt. You have the effective

equivalent of an arms race against this. So an angry consumer is

always going to find every tool available to them to be heard and

that data stream is going to be their next tool.

JULIE McCROSSIN: Look we've fallen in love with Mark Pesce, let's

be honest. That was a tremendous conference presentation. Would

you give him a big round of applause. (APPLAUSE) And if I could

ask Teresa Corbin our fearless leader the CEO of ACCAN to come

forward. Before I hand over to her, didn't you love the fact that the

young Chinese man playing the computer when looking for a word

to convey the experience from communist China that's fought so

hard against faith used the word "god". An interesting social

implication. Perhaps you don't!