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EP65 | Capitalizing on cloud migration

Rob Campbell: **00:00** Hey, Rob here. Here's another podcast we recorded a number of months ago with Justin Anderson, this one about cloud migration. I think this one is particularly worth listening to and prescient, just given how important the ability to operate remotely and have your enterprise stack in order has been for companies navigating through the current environment. So, really do hope you enjoy.

Disclaimer: **00:45** This podcast is for informational purposes only. Information relating to investment approaches or individual investments should not be construed as advice or endorsement. Any views expressed in this podcast are based upon the information available at the time and are subject to change.

Rob Campbell: **01:01** All right. Well, today on the podcast we have Justin Anderson, one of our equity analysts, and what we're here to talk about is cloud migration. We've got a lot to talk about there in terms of investment implications, some of the history. But before we dig into that, Justin, I thought it'd be really interesting to dig into your history, and specifically why technology just appears to be area of genius for you—something that you love and that you also have a lot of experience in.

So, can we start there? What's your background and specific to your interest in technology?

Justin Anderson: **01:33** Absolutely, Rob. And it's great to be with you. I remember when I was...I think I was eight years old when my dad bought an old IBM—what was it, 5150—computer. He racked it out there and you turn this thing [on]... I was entranced! I mean, it spoke to me. It was like, here's something that we can use. It can do all these tasks that are much harder to do manually.

It's been a love relationship ever since. I've been in love with computers and technology.

Justin Anderson: **01:57** Initially when I was growing up, I thought I'd be a developer. That was really the path I was taking. I took a college degree in computer programming, so I did that for some time. It culminated when I went to school at MIT—I actually started a company, [a] technology company called Waybe, and what this company did was … you would take an AutoCAD type platform program, or you would digitally design a product, [and] our product would let you take that design, unfold it into a two-dimensional flat pattern. You would add glue tabs to the two dimensional pattern, print it out, and then you could cut it out with scissors and assemble the thing in real life.

02:29 We had boxes of TIE fighters and X-Wings and all these sorts of things that we were building with it and we were selling them to teachers and just having a great time. So, absolutely something I've always loved to do. I'm very entrepreneurial. [So] yeah, a bit of my background on tech.

Rob Campbell: **02:42** You took a bit of a passion in technology and you actually built a business around it. Was that the only business that you built in the tech space?

Justin Anderson: **02:48** It isn't. Funny you should ask. After that, (the company did moderately well), I actually started another company which actually led to my interest in capital markets. I started a company that looked at oil and gas and tried to value oil and gas portfolios using Monte Carlo simulations. That was something that actually launched my career into investing—I got a job with a sell-side company, basically leveraging that technology to do valuations on oil and gas companies. So, no, it's a recurring theme in my life.

Rob Campbell: **03:16** Okay, fast-forward to Mawer: you work as an equity analyst. We are generalists at Mawer, in the sense that we're not focused on specific narrow sectors—we like having a broad perspective on our portfolios. But would it be fair to say that within that construct, you are focusing a little bit more of your time on technology companies?

Justin Anderson: **03:34** Yeah, absolutely. One thing that attracted me to Mawer when I first came was they carved off a little piece that we called "The Lab" and they said, "you operate like a generalist, like an analyst, but some percentage of your time you can actually work on leveraging technology to improve our process, make it faster, better, and whatnot."

That's something that is, as people here are probably are well-aware of, is a big passion of mine as well. We've spent a lot of time in The Lab trying to build tools and products and processes that make us faster and better at what we're doing here.

Rob Campbell: 04:04 Awesome. So, as I mentioned off the top, we're here to talk about some of the investment implications around cloud migration. Can you maybe start at the beginning? Where are you setting us in time and talk us through some of the steps or the evolutions that you've seen with regards to technology in this space?

Justin Anderson: 04:20 What I want to do for this question is just really take it back to something that's really tangible for listeners. Because technology, the problem with it, [is] it can get very abstract very quickly. People are like, "what the heck are you talking about?" Let's try to make this a little less abstract, a little more tangible, and then obviously if we can't avoid the abstract, we'll eventually get there.

04:37 To begin with, think of technology in the enterprise world in companies, very similar to a desktop computer. Everyone has a desktop computer, they kind of know what it is. You can break the desktop computer into three pieces. The part that people are most familiar with would be the applications. This is the part that's doing the work that you care about. It's a word processor, it's an Excel spreadsheet.

04:58 Below that would be the platform. You start with the application, but the application has to run on some kind of platform. The one that's going to be very familiar for people is going to be Windows. So, Windows, (Macintosh has a platform as well), but this is the system that the technology uses to allow the applications to talk to each other. It's the user interface, that sort of thing.

05:17 Then at the bottom layer of the desktop computer is the infrastructure. In a desktop that would very much be your hard drive and your memory and all that physical stuff.

Rob Campbell: 05:26 The actual physical pieces.

Justin Anderson: 05:27 The physical pieces. So, those three would work in concert to deliver you that computing experience. And in the enterprise world, essentially it's the same thing, but just much more complicated. If you look at infrastructure where it's hardware over here, over in the enterprise world, that's going to be servers. That's going to be your networking equipment. It's going to be all the things that let your infrastructure talk to each other.

Rob Campbell: 05:46 This is the Microsoft Azure and the Amazon Web Services—

Justin Anderson: **05:51** Absolutely. Absolutely.

Rob Campbell: **05:51** —and all these things. Got it.

Justin Anderson: **05:52** Then, at the platform level, that's going to be your CRM system—Salesforce, for example. It's going to be your HCM system. All these platforms that are merging a bunch of different applications together and allowing them to work in concert.

06:04 And then the final layer is going to be the software, and that's very similar. It's going to be the applications that are going to actually be delivering the service.

06:10 Now {to] get back to your original question, which was the evolution in the enterprise stack, this hierarchy in computers and technology hasn't necessarily changed over the last 20 years, but what has changed significantly is the delivery mechanisms for this. If you think back 20 years ago, a lot of what happened was people would deliver and deploy these stacks—this enterprise stack—on premise.

Rob Campbell: **06:32** Right. I'm just thinking about…I'm at home 20 years ago, I had a PC. Windows came loaded onto the PC. And I had to go buy a disk with Microsoft Office on it that I would load and actually purchase that way for my software.

Justin Anderson: **06:46** That's exactly right. And you'd have your own Windows package there, everything's being delivered physical[ly] and then you're installing them. Then what's happening with the cloud migration is more and more of this stack is evolving into the cloud delivery. So, rather than you buying it at a hardware store or a software store and having to manually install that, you just click a button and now it's unified. It's coming from the cloud. What this does, is it solves some really important problems.

Rob Campbell: **07:11** Could we get into those? Why? What are the benefits of moving to this more enterprise type solution?

Justin Anderson: **07:17** First one is versioning controls. One of the biggest early problems with technology was, "hey, my version of Excel, can't talk to your version of Excel and therefore we can't collaborate." So we had to make sure we ran the same batch and it causes a lot of friction. Cloud solves that problem; takes that away. We're now all using the same application.

Rob Campbell: 07:36 In other words, instead of buying that Microsoft Office Suite on a CD I bought it in 2005, roll forward and it's 2012, and my own desktop is still operating off of this old version of Excel. Other versions have moved on and potentially have compatibility issues when sharing files, things like that.

Justin Anderson: 07:52 That's exactly right. Then, the next one would be scalability. You can think of this as, you're starting a company. You start a company, [and] the first thing you need to do is you got to answer the question, "well, how many computers are we going to buy? How many servers are we going to get? How much hardware technology are we going to invest in?" That can be punitively expensive because you got to make sure you don't get too little that, if there's a lot of demand for your product, all of a sudden, you don't have enough resources to service it. And if you overspend, you might sink your business because you don't have enough money to begin with.

Justin Anderson: 08:18 Scalability really started to get solved with a lot of the Azures and the AWSs of the world—this is called infrastructure as a service or IaaS. What they did is they said, "well, just buy what you need." So, when you start a company, you don't have to worry about any initial upfront investment. All you do is you click a button and you spend a hundred dollars and that's how much capacity you need. But if all of a sudden 10,000 users come on your system, now you can spend $1000 and ramp up your capacity instantly.

Rob Campbell: 08:44 Well, I just went through this at home. We've got a certain amount of storage through iCloud. (We're an Apple household.) We went through the limit and it was just easy to upgrade the amount of storage that we had available to us through iCloud. My wife takes a lot of pictures and just doesn't delete lots of copies of the same thing, but it was that simple to upgrade the storage/ I didn't have to go out and physically buy more storage space, et cetera. It took 30 seconds.

Justin Anderson: 09:07 That's a perfect consumer example of it. Then the third piece of the puzzle in terms of "what are these trying to solve," (it's kind of the big kahuna), which is the integration level. In terms of the scalability side, I think we're well into that trend: people are moving more and more infrastructure into the cloud. But I think on integrations, we're actually still relatively early in that transition. And integration is really about how do you get the applications to talk to each other seamlessly? It's a very difficult problem. We face that all the time here at Mawer. All companies are facing this problem.

09:36 A tangible example at Mawer is we use Capital IQ for a lot of our data sourcing—public information on stock prices and shares, that sort of thing—and we need to integrate that with our internal data. And those systems aren't set up to fluidly talk to each other. So, all enterprises are constantly having to solve this more manually. And as platform as a service evolves (PaaS), that's going to allow that to happen more seamlessly.

Rob Campbell: 09:59 Can we go back, though? And maybe we take this one by one: the software, the platform, and the infrastructure—some of these are a little bit more obvious than others. What were the drivers for businesses?

I guess I'm thinking first and foremost about Microsoft, which probably has skin in the game on all three of these levels to actually innovate and push towards this. I mean, surely there were business reasons for them to do this.

Justin Anderson: 10:20 I think Microsoft's an interesting case. One of the things that we really look for in companies is focus. Microsoft's definitely a company that we really like, and part of that reason is they have an intense focus on, in this case, the developer. They're really, really focused on, "how do we make the developer's world easier? How can we give them the tools?"

10:41 A lot of the stuff, actually, in Microsoft's success in Azure and other .NET, has really been driven by their intense developer focus and serving that need. It's less about "do we know what we're going to do in the future," because the answer is the future is very uncertain, we don't know. "But can we focus all of our attention on serving the needs of this group, this community?" And by doing that, that has led them down the path into a lot of the tools that they now find themselves owning, which are actually very valuable tools that they're able to monetize through the enterprises.

Rob Campbell: 11:13 I'm thinking even just more simply software as a service (SaaS), as opposed to you buying those Office CDs that I keep referring to [laugh]—just get a monthly subscription that enables you to keep that versioning. I presume from Microsoft's perspective, that has the benefit of just making more sticky customers with more recurring revenue as a business reason to move in that direction.

Justin Anderson: **11:33** Part of it is they've really transitioned a lot of their business model from one-off purchases. So, you would buy that Windows 7 version and then do you need to upgrade to Windows 8 or do you need Windows 10? There's always this upgrade decision, and more and more of their product—the vast majority of it actually, now—they've transitioned to say, no, you just buy the subscription and we'll keep you up to date. And that does solve a lot of that versioning problem that we were discussing, and it also makes for a better business—a more recurring business model.

Rob Campbell: **12:02** What about from the infrastructure perspective, though? Because, at least the way I've thought about that, is it's such a capital-intensive part of their business—where the economies of scale are so huge (in terms of having all these servers around the world), that it almost feels like a winner-take-all (or a couple of winners). And it seems like that's the way the market's developed.

Justin Anderson: **12:21** I think that's exactly right. And it is a scale issue. And people do want some competitors. But yeah, the big players today are Microsoft, Amazon, [and] Google in third position. The other thing that I would say [that] is a bit of an unintended benefit of what's happening with these infrastructure-as-a-service providers, is they're actually evolving into platforms, which is quite interesting.

12:42 I think initially, maybe five years ago, people saw them as no, they're just going to provide the rails, the infrastructure. But they're now becoming that hub for all the applications to sit on. It does make sense intuitively as you walk your mind through it, but it's really making those businesses even more impressive and more ability to monetize various assets as they offer that platform capability, as opposed to just pure servers and hardware offering.

Rob Campbell: **13:07** I guess from a business model perspective, it's also just monopolizing each individual customer. If you can get a relationship with a customer across all three levels of this enterprise stack, it's just so difficult to move and move somewhere else. As I mentioned earlier, we're an Apple household, and the thought of going somewhere else (and you could do it)…but just the sheer level of effort…it's just easier to stick with Apple going forward.

Justin Anderson: **13:29** That's a really good point. The way I think about it is, today there's…I think the number is something like $3 trillion a year are spent on IT departments globally. There's just huge amounts of money being spent. And the amount that's being spent on these cloud solutions, software, platforms, and infrastructure, [is] something like 7% of that number. It's a fraction.

Justin Anderson: **13:50** So, what is that? What's the other 93%? Well, the other 93% are salaries for people that are maintaining infrastructure that may be out of date. It's doing a bunch of data loads that maybe the platform would be a better position to help with. It's also hiring a lot of consultants to come in and tell people how they should set up and move data around and come up with custom solutions.

14:09 There's all this "wallet share," the way we call it—the spending that's happening internally with companies that is available for these vendors if they can provide that kind of capability and come in. We're quite optimistic, I guess, about the ability for these cloud providers to capture an increasing share of that wallet.

Rob Campbell: **14:27** That's a great transition, because I really do want to get into some of the investment implications on a company-specific or industry-specific basis. You touched on this a little bit. (We touched on this a little bit from an infrastructure perspective.) Clear winners, Azure, Amazon…those that can have that scale. And it's almost too late—I mean, the barriers to entry from that perspective are surely insurmountable at this point, or close to it. You mentioned some of the hardware providers as potentially "losers" here. What other potential losers are there from that particular theme on the infrastructure side?

Justin Anderson: **14:57** It's a really important question. Winners and losers, starting with losers, I would say that I would put consultants not cleanly in the package of losers because there's a bit of a mix. For example, if you're a consultant, you might actually benefit from a transition that a company does where they're on-premise today and they want to move to a more hybrid or to a full cloud solution. They might be able to come in and actually help with that and that might actually convert into a bit of a recurring business. But at the same time, it can be a drain on the consultants, because once you solve the problem that historically was done through these customized solutions that are heavily supported by consultants, then maybe you don't need the consultant as much in the future.

15:33 So, very much depends on the consultant. It depends on the nature of their business. For example, in Canadian Equity Fund, we own one of the consultants, which is CGI. One of the things we like about CGI is they have a large government business, and what we're seeing in the government is a much slower transition to moving to the cloud. We think that headwind from transition isn't necessarily a major problem for CGI. And, at the same time, they can benefit from companies that are moving to the cloud in the private space. That would be an example of a mixed bag.

Justin Anderson: **16:02** I think other potential losers, actually...it's a bit hidden, because the big loser is actually internal IT departments. And you're not really going to see that in any given company. One way to think about it would be outsourcing companies might be one. Where it's like, hey, you hire a company in India to help you run your IT stack and maybe you don't need them anymore. So, some of the IT outsourcing businesses might suffer from it. Those are a couple of examples of losers.

Rob Campbell: **16:25** Interesting. What about from a platform perspective? How do you think about winners and losers in that space?

Justin Anderson: **16:30** Platforms are really interesting. I mean, one of the problems with technology is everything is called a platform nowadays and it starts to lose its distinction and everyone doesn't know what we're talking about. The way that I really think about platforms is, to what degree is it enabling applications to talk to each other? Different parts of the business that are solving business problems to talk to each other. Another good evidence of a platform is third-party developers—if they're building on your platform, maybe you can call yourself a platform.

Justin Anderson: **16:56** But I would put platforms into two buckets. Bucket number one is incumbent platforms. This is going to be your SAPs, your Oracles—these companies that actually historically have been the major platforms for the enterprises.

Rob Campbell: **17:08** And are entrenched to a large degree.

Justin Anderson: **17:10** To a large degree. And those companies, the results are wide-ranging. Some companies are doing a fantastic job of transitioning their older platforms into cloud platforms. SAP is actually a pretty good example of a company that seems to be doing a reasonably good job. Oracle is struggling a little bit more (would be an alternative).

17:27 The other kind of platform that we're seeing is the disruptive platform. This actually, it would be a company that we own in a couple of international funds, Adyen, but this is where you start essentially from scratch. And you come in, you build a very low tech debt platform and you start to take market share.

So, that's a couple styles of disruption that are happening. They both have pluses and minuses, but yeah, you come in and you're trying to take customers either through disruption or by improving your existing offering.

Rob Campbell: **17:54** The advantage to a company like Oracle then, is that they just have so many customers today. Obviously IT transitions are complex and can be painful, so that adds a little bit of stickiness to their customer base.

But as time goes on and these new disruptive platforms come in—you mentioned tech debt earlier and I want to expand upon that a little bit, listeners will know we did a podcast on that a little while ago—but I guess that's the issue, right? Is the longer time goes on, the less Oracle invests to bring up the level of their platforms to the level of some of these disruptors, the higher amount of investment required to actually remain competitive after that. Would that be a fair way of summarizing that?

Justin Anderson: **18:30** That's a great way to put it. I think Oracle's an interesting example, because let's say 10 years ago, they actually had by far the best database in the world. The fastest, it was the best. It was the premier version. And that's why a lot of enterprises went with them. But disruption and technology being what it is, eventually Microsoft SQL started to perform at a very similar level, but they also offered a lot of other capabilities. So, that competitive pressure really start to come to bear.

18:55 I think another good example of the struggle that platforms have to deal with, because you're right, they do have an advantage [as] an incumbent platform [in] that they have the customer. That's a huge advantage; you can work with the customer to improve it. An example would be the payments industry. In the payments industry today, you have a lot of these payment providers, payment processor providers—I'm thinking of companies like Fiserv, FIS, Global Payments—and they offer to merchants a solution where, hey, you can accept a credit card and serve your customer that way.

19:24 But Adyen came in and they had this advantage that instead of having to serve banks and multiple stakeholders like the payment conglomerates have to do, they were 100% focused on the merchant. It ties back to that Microsoft theme that we talked about, of focus, where Microsoft was focused on the developer. And in Adyen's case, the focus is on the merchant. And that focus really, for the disruptive part of platform creation, is it seems to be a real competitive advantage that helps to get companies into the market when they're trying to penetrate or disrupt.

Rob Campbell: **19:52** The wonderful part of this, I think, is just that the winners in the platform space—maybe this is true of the entire enterprise stack actually, but it just occurred to me—the real winners are the ones that are putting their customer's best interest first. In other words, the ones who are helping their customers the most, which was obviously what you'd love to see, I guess.

Justin Anderson: **20:10** It's absolutely. Another example I'd use would be Shopify. Where it's like, again, this is a company (just a reminder for our listeners), [that is an] ERP essentially for ecommerce companies. So, if you want to sell products online, this is the company that'll handle all of your processes for your business, your inventory, et cetera. But what they really present themselves as, and the philosophy they've really stuck to is, "hey, we are in it for the merchant. We're not in it for the consumer. We're not trying to serve a bank. We are 100% focused on what does the merchant need."

And all of their actions that they take, if you watch how Shopify acts and what they invest in, it's essentially driven by the feedback that they're getting from their merchant community. And that itself, that focus, becomes a competitive advantage. That is my story—my belief—that's been a major part of why Shopify's been so successful.

Rob Campbell **20:58** I guess, thinking beyond technology companies and the technology space…we're an investment management organization, but are obviously hyper-focused on investments in technology to make sure that we have what we need. I mean, [for] every business in the world this is a major issue or at least something that they need to address—this cloud migration or just what to do with their stack.

Are there investment implications beyond the tech sector or that you would point to that are either winners or losers, just to put it simply, with regards to this theme? And maybe [it's] broader than that—just the economy in general?

Justin Anderson: **21:28** Yeah, I think it's your latter point. One example we use is the idea of productivity. Where does productivity come from? You think of libraries in the past, how much money and effort and space we spent to try to give people the ability to find information. This was a massive investment. Then along came Google, and wow, now we get way better service at way less cost to society—in terms of overall resources that we're putting into this. That math is just a massive productivity tailwind.

21:56 I think the story from this cloud migration—at least the bullish story—I'm sure there's going to be some skeptics out there, and we have them on our team as well; we have lots of different opinions. But one story is that, no, this is a major tailwind for productivity.

We're largely the way through there on the versioning SaaS component of the cloud migration. We're sort of halfway there on infrastructure-as-a-service migration. And we're just starting on platform-as-a-service migration. And, as these migrations mature, what you're likely to see (the bullish argument would be) is continued pressure on productivity that might get hidden a little bit in strong deflation.

Rob Campbell: **22:34** Well, I was just going to ask about that, because I haven't heard so much about this lately, but I remember a couple of years ago there was the productivity puzzle: why is productivity so low? And technology was actually mentioned as one of the reasons. So, how does that square with this productivity tailwind that you're referring to?

Justin Anderson: **22:49** This is going to get us into a fun tangent [laughs]. This is an area I just had a presentation with our CIO Paul Moroz [about], and I remember going through that. He showed five different theories today on the causes of deflation and causes of this really low interest rate environment—even negative interest rate environment—that seems unprecedented. It is unprecedented to a large degree.

23:09 So, there's a lot of unknowns. And it reminds me of reading in the past about stagflation, and how stagflation in the '70s was something that was never really supposed to happen. You weren't supposed to see high inflation at the same time that you saw high unemployment. General theory by Keynes predicted that that was essentially impossible, and yet it was there. And so it was a conundrum people tried to figure out.

23:31 I think today we're in a similar place, where I'm certainly not going to be able to tell you what is happening with why the indicators are telling you that. But what I do believe is that the argument that technology is playing a material role in these massive deflationary pressures—I find that very compelling. I mean, the example I like to use is, imagine Star Trek [and] the machine that can create any food that you command.

Rob Campbell: **23:52** Sure, yeah.

Justin Anderson: **23:52** There's some term for it. Sorry. I just lost my credibility as a Star Trek nerd [laughter], but you can imagine having that machine, and imagine that it costs nothing to use it, it costs no resources. It's just infinite productivity—it can produce whatever you imagine. If you had that machine, what would happen to prices? What would happen to deflation? It would just crash. It would be literally zero prices at all, because you could just press a button and get whatever your mind determined.

Justin Anderson: My belief is that as we come up with technology and continue to improve and innovate with technology, that does cause this kind of massive deflationary pressure in society.

Rob Campbell: 24:28 Got it. Just before we wrap up, two more questions on this: Where are we in terms of the cloud migration? If this we're a baseball game, what inning would we be in?

Justin Anderson: 24:36 I'd say there's three games, and there's the software, there's the platforms, and then there's the infrastructure. I think for software, we're far along. We're in the seventh inning. I think most things are being distributed now as SaaS—[it's] quite uncommon to go to the software store and buy an application disk that you install. Infrastructure might be in the fifth inning, it's sort of halfway through. And then maybe we're just starting second/third inning with the platform-as-a-service type migration.

Rob Campbell: 25:04 So, what does this look like 10 years from now, Justin?

Justin Anderson: 25:07 I don't know what's happening in two years, let alone in 10 years, so that's going to be difficult. But what I would say is I think probably you're seeing smaller, more application-oriented IT departments within enterprises.

If you think of the enterprise department today, there's going to be a large infrastructure team that's supporting your servers, there's the data team, and maybe there's an application team that's helping with the solutions.

25:29 And my belief is that probably over time, you're going to see more of that third bucket and maybe less of the other two buckets as that gets outsourced into cloud providers. So that might be the biggest change that you might see within companies.

Rob Campbell: 25:41 Sounds like an overall simplification for potentially maybe a bumpy road to get there in terms of the transition, but—

Justin Anderson: 25:47 I'm glad you said that!

Rob Campbell: 25:49 —a simplification for certain businesses.

Justin Anderson: 25:50 Because what you just triggered is this idea that one of the hardest parts of starting a new company is the upfront costs. What this really does is it brings that cost way down. So, you might actually see a lot more innovation, a lot more disruption. Because players can come in at a lower cost and get going.

Rob Campbell: 26:05 Well, for a person with an entrepreneurial bent, that seems like a great place to end—

Justin Anderson: 26:09 Absolutely! [laughs]

Rob Campbell: 26:09 —on an entrepreneurial note [and] optimism in terms of what it means for innovation going forward. Justin, thanks for coming on the podcast and for sharing your thoughts.

Justin Anderson: 26:15 It's been a lot of fun. Thanks, Rob. I always enjoy it.