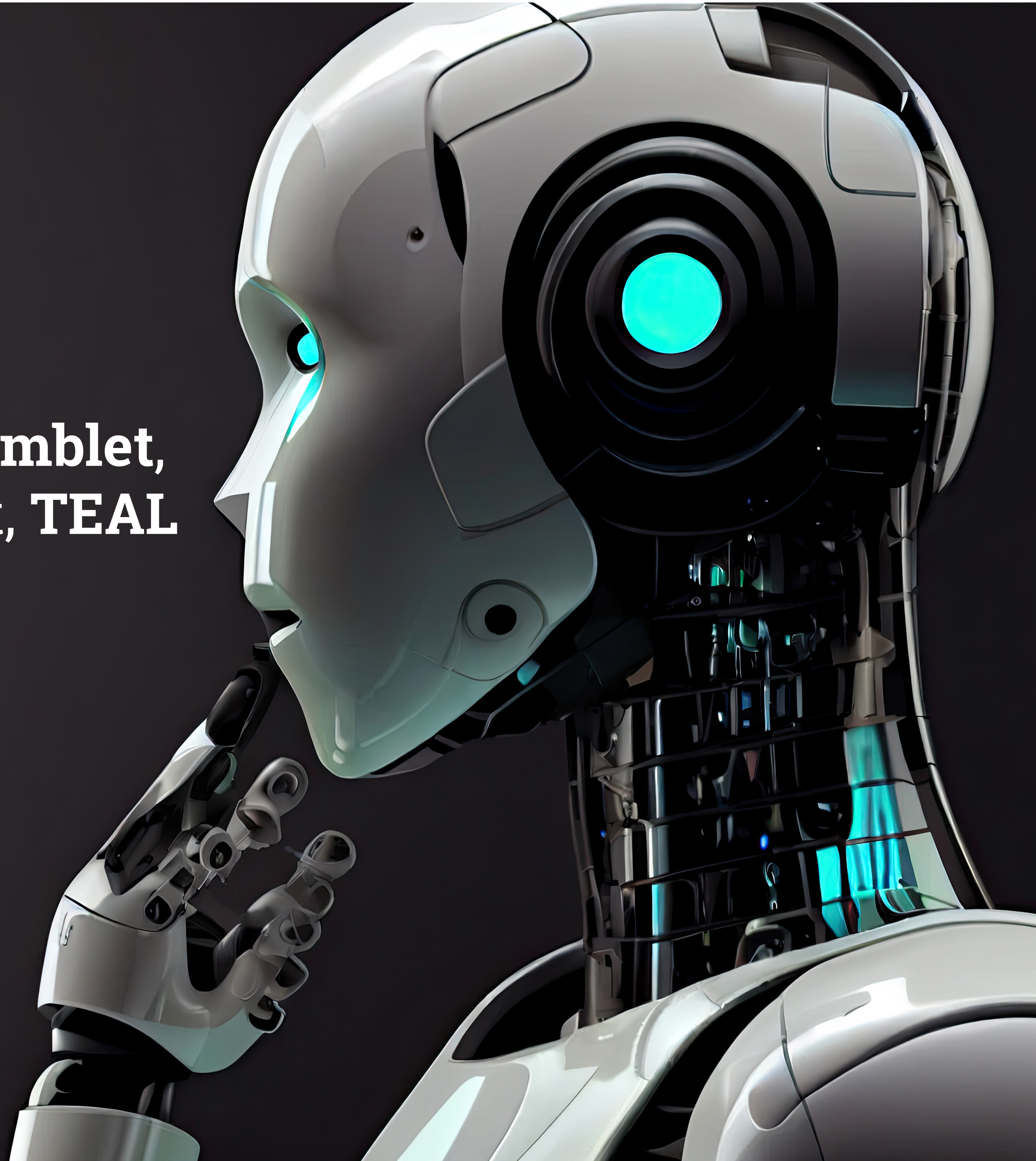
Interview with **Robert Hamblet**, Founder, CEO & President, **TEAL**



Matt Hatton, Founding Partner, Transforma Insights & **Robert Hamblet**, Founder, CEO, & President, TEAL

Robert Hamblet is the Founder, CEO, & President of TEAL, a global networking company headquartered in Seattle, WA. Teal is the first US-based eSIM platform to be certified by the GSMA providing a cloud-native, Credentialing-as-a-Service platform that provides intelligent connectivity and networking solutions for IoT devices and network operators. Prior to founding Teal, Robert developed some of the industry's earliest eSIM platforms for several multi-national connected car manufacturers.

At this year's Mobile World Congress Las Vegas, the theme of eSIM – and particularly the new SGP.32 remote SIM provisioning technology – were top of the list of topics of conversation. Robert Hamblet, Founder, CEO & President of TEAL met with Matt Hatton, Founding Partner at Transforma Insights at the event to discuss how TEAL as an eSIM-first company was well positioned to embrace the new market realities of SGP.32.

MH: Teal is the first US-based eSIM platform to be certified by the GSMA providing a cloud-native, Credentialing-as-a-Service platform. What's credentialing as a service?

RH: To start to answer that, I would contextualize that we are an eSIM technology company that has connectivity awareness, which is different from a connectivity technology company with some kind of eSIM capability. Our technology is eSIM. We have built the SM-DP+, SM-SR, and other associated functions ourselves. Normally an MVNO is using an eSIM platform off the shelf. They know about it and have awareness of it but connectivity is where they make their money.

When we talk about being a credentialing-as-a-service platform, it's that the problem that we fundamentally solve is that there are all these different network credential packages, all these different eSIM profiles. Combining the different eSIM vendors together into one platform has been a challenge for the enterprise. So we're an eSIM technology company -dealing with credentials, first, and a connectivity company second. This is in contrast to being a connectivity company first and an eSIM technology company second.

We have customers that never use us for connectivity. They come to us with a problem of having, for instance, a Verizon and an AT&T relationship and they've got profiles from each, but one has a Thales platform and the other a G+D platform, and they don't want to give half a million dollars to do that integration. How do you make those different credentials with different relationships work within one solution?

Teal is kind of the Switzerland of making all that work together. I think we're pretty notable in that we've done ES3 integrations with every major vendor. I don't believe anyone can match us on interoperability. We've been able to cover all the gaps. Take for example: If you were a car company and you were just using a Thales solution, you'd really be limited to work with Thales operators, and you would typically pay a la carte to do the other SIM vendors. But we're multi-platform. This is a very long answer but when we say we're a credentialing as a service company, it's really just because that sophistication is what we're trying to solve for.

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MH: Some of your peers also talk about performing this role as an orchestrator, with customers able to bring their own connectivity, but most the time when connectivity providers offer BYOC the customer doesn't want to and ends up procuring connectivity from that same company. Is that your experience?

RH: No, in a BYOC we always support the operator business model first, because it's only with their blessing that we're able to do any of this wonderful interoperability. And then it's the enterprise challenge second, where we're trying to fix for them what isn't working with existing carrier and off the shelf solutions. Frequently what this means is there is an actual relationship with that operator that stays intact and we work together with the operator as a partner.

We've already gone through it. Most of our market presence so far has been in North America and we have great relationships with all of the major North American operators. So we work together with them. We don't compete against the operators. As soon as somebody says, I'm bringing my own T-Mobile relationship, we never price a Teal sourced T-Mobile relationship as an alternative.

MH: So, working with the carrier's blessing?

RH: Yes, working with their blessing. There are fake BYOC relationships where they become like very bespoke replacement projects. We've already done these BYOC relationships with every major operator in North America. So there's already an established integration path. It's just about swapping the API keys, or it's just about making sure there's a new login. We reuse a lot of our existing integrations to fulfil that, and the term to use is credentialing then, so this points to the, effectively, digital credentialing within the same relationship.

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MH: And, as I understand it, you see this as being particularly pertinent to the needs of hardware OEMs, right?

RH: We get a lot of interest from folks like uBlox and Quectel and other module manufacturers that want to make something a better off the shelf product for their customers to activate seamlessly across different carriers. It is a problem that modules and OEMs have been trying to solve for a long time. But in the last 10 years, functionally it has really just been about giving them an IP address through an MVNO. It comes with a SIM card that is hooked in with some existing connectivity supplier.

In SGP.02, if you just gave them a blank M2M SIM with an SMSR from a SIM technology vendor like Teal or G+D or something like that, there would be a whole bunch of work to integrate the carrier relationships after the SMSR is setup.

We think that eSIM is very soon going to be taking a huge step forward for the OEM solutions, the OEM products. Because in SGP.32, there actually is flexibility. It can start from nothing and enroll in a platform after production with limited coordination required between the enterprise and the operator that they're trying to get onto. It'll be interesting to see who solves that problem or at what level people try to solve it.

For instance, does SIMCom try to sell an eIM? Does Telit restrict their eIM only to access packages that they're reselling? I think the module OEMs have always tried to monetize connectivity or they've always been interested in it. Some haven't been, but some have been. Recurring revenue is sexy, for sure.

But when a customer goes, I wish my Quectel EG25 module was easier to set up on the network, I wish I could use the SIM that was included. They meant that with their own credentials, their own operator packages, and Teal wants to make that happen with SGP.32 for sure.

MH: It's you working with the OEMs rather than the OEMs working with their own MVNO activity?

RH: It depends. I mean, there's nothing that says that the card or the OEM has to include an eIM out of the box. It can come blank, and the enterprise can add an eIM later. That's one model. Second model is that the eIM's included, but it restricts the enterprise from only activating under the OEM's MVNO models. Right, so that would be like when Quectel previously included a floLIVE branded SIM in product that only activated floLIVE services.

And the third model is that the module manufacturer, the OEM, provides an eIM, but it's one that's sufficiently open so that you could bring your own operator relationships and you're not restricted to a certain environment.

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MH: What's in it for them doing that?

RH: For the OEM, they get the product simplification. So customers want to be able to activate with an API call and not have to add a $2 increase to their bill of materials. Alternatively the customer would need to be buying their own eSIM rather than the eSIM being embedded in the module. If it was more complete it's got an iSIM or it's got an eSIM already on there. That's one way, but I could definitely see OEMs wanting to monetize the connectivity that's activated through their service. If they bundle an eIM, that's that second option. But it's not going to solve every problem that an enterprise could have, clearly. So it's in the interest of the enterprise to have the open option. It's something to watch, I think. We've seen lots of stops and starts and slowdowns on OEM MVNO strategies, like Telit, Sierra, AirLinq, and Quectel.

They're definitely making more recurring revenues than if they were just selling the chip and maybe some SD-WAN solution. But is it solving the problems of the enterprise really to have that convenience of an arbitraged MVNO subscription? I would argue not.

I would argue most people want to buy the connectivity from the carrier themselves or at least have access to a direct profile. I'm a very idealist eSIM CEO. I don't know if you know about my background working together with General Motors and trying to do a very bespoke Oberthur M2M platform. I would really like, if I was an enterprise, to have this level of relationship to the carriers, but the product delivery, the support of using a third party, just didn't make any sense when that third party integration was taking a year and charging hundreds of thousands of dollars to do those integrations. I think it's why SGP.32 was developed in general, to make those kind of interoperable solutions easier. That's why Teal was started.

MH: One of the topics that we think would be interesting to discuss is the SGP.22 / SGP.32 fragmentation that is happening right now. How do you see that?

RH: There are some proprietary, bespoke SGP.22 solutions that exist out there. TAC is probably the biggest one. Thales Adaptive Connect, its SGP.22 solution. It's probably the biggest out there. G+D and Kigen have some offerings as well. They've managed to load a set number of profiles into that system. They've convinced some carrier product teams that there's some stepping stone needed between SGP.02 and SGP.32. But are new carriers in the future going to invest in a bespoke SGP.22 solution or are those product teams going to be spending their times developing industry level SGP.32 competence in the future? The concern that I have is that companies that are adopting these SGP.22 solutions are getting stuck in a one-off environment that's not likely to continue growing with the launch of SGP.32. It goes beyond technical compatibility of SMDP+ profiles and really into the mindset of the carrier. SGP.22 does not have a standard management interface like SGP.02(SMSR) or SGP.32 (eIM) do. I don't believe that carriers can trust an unmanaged deployment on proprietary technology.

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MH: So it's dead end, effectively.

RH: Yeah, if it solves exactly what scope you want to do with it today, great. But if you're trying to solve for product complexity across 200 SKUs – and we have a customer that had 560 SKUs, a lot which was related to carrier plan configuration across different SIM cards, across different credentials – if you want to consolidate that with eSIM, a proprietary SGP.22 solution is going to be stopped. The idea that the 12-month cycle that any carrier takes to develop a new eSIM product is going to be spent on a one-off platform just for that one customer on a bespoke Thales solution or just for that Kigen solution or just for that G+D SGP.22 based, it's a one-off. There's a higher cost for the operator to do that implementation than if they just get to SGP.32 in the next few month.

So, I think that if you're on the edge, if you're in a design cycle for a product, I do think that SGP.32 will be ready early next year. With at least as many operators as the proprietary SGP.22 solutions, but with a much better upgrade path.

And a plug for Teal is that we built SGP.32 capabilities into our SGP.02 environment so that we could keep growing our SGP.02 environment. We don't see that environment ending anytime soon. We're committed to growing it with our two platform approach. We plan to load every new profile in both our SMDP and SMDP+ for as long as possible.

MH: So there's a natural upgrade path, a transfer path?

RH: Yeah. Everything that we're doing from here on out, integration-wise, is for SGP.02 and SGP.32. But we've also already kind of conquered North America. We're going to keep doing both.

There's still operators out there in 2024 that are only just now launching SGP.02, right? V1 of the spec was 2013. When was SGP.02 first available in production, 2015? 2016? So, they're going to take a long time to get to 32 next. Maybe 1 or 2 years. For a carrier that just got to SGP.02, they're going to want to monetize that one. Their product teams can't move as quickly as a software startup would. So I do think that SGP.02 is going to hang around a bit. I don't know if you think the same thing.

MH: Yes. In fact, very specifically, we did some forecasts back in 2023 that break down cellular IoT connections by RSP technology. One assumption was that 1% of shipments would be SGP.32 compatible by the end of this year. This obviously was wrong, but we're not that wrong. Now, 2024 was too ambitious, and we probably should push that out a year.

RH: That wasn't your fault, I mean, they delayed it, right?

I think that if you're on the edge, if you're in a design cycle for a product, I do think that SGP.32 will be ready early next year. With at least as many operators as the proprietary SGP.22 solutions, but with a much better upgrade path.

MH: Yeah, so I'm going to claim that everybody was dragging their heels a bit, and so it goes a bit slower. But, related to the question of persistence of SGP.02, that M2M standard sticks around for quite a long time. The automakers, they're not going to shift off SGP.02 any time soon.

RH: No, they've spent so much money on it, like a ton of money. Carriers like the visibility of an SM-SR. They have a partner that they can keep tabs on, one single partner. And in SGP.32, it'll be interesting. I think there's some risk to the carrier business models deciding that it's a little too open and free. We'll see. But you can imagine if there's 50 different APIs to activate an operator line, there's going to be a lot of competition and the carriers historically do not want so many channels competing against each other and selling the same thing, its not very efficient. So that will be interesting to see with SGP.32 as well if some carriers don't decide to just punt on it because they don't want an API driven activation. They want to make a bet on the business and build a closer relationship than 'AT# getprofile'.

I don't think the US companies will be like that. But certainly in South America, we've seen a lot of channel suppression. A lot of slower projects intentionally slow because they have a bigger know-your-customer (KYC) requirement with certain markets. So if there's a big KYC requirement due to whatever reason, due to legislation even, due to network compliance, then you could see somebody asking what the benefit is of a completely digital enrolment process for my network? I disagree with that. I think there's incremental revenue opportunities, and it never hurts to make your network easier to access. But I do think that carrier product people have been scared of eSIM in the past, like I said, it has taken some MNOs 8 years to get here, and we're still at what, 200 out of 800? How much of that is tooling versus just business model?

MH: You're talking about SGP.32 there specifically?

RH: No, there's like 200-250 eSIM-capable operators out of 800 LTE capable operators.

MH: But that probably accounts for disproportionately large proportion of the market.

RH: Oh for sure. But people are still questioning why Apple launches iPhones with physical SIMs in certain markets, it's because there's no eSIM. And some of that's just because they sell SIMs through retail channels and they don't have a digital process underpinning it.

MH: I wanted to run through your recently announced deal with Three Group Solutions a little bit. What's the reasoning behind that?

RH: Well, 3 is an awesome network solution. I worked with them in the past. They were on some early projects when I was working on an MVNE, Fogg Mobile and I spent some time with them in Reading. So we went to them, obviously 3 has quite a bit of wholesale experience. And we said we want to deliver the 3 networks to our IoT enterprise because our customers aren't just looking for any IP address. You can roam onto the three networks really easily. In the EU there's all that roaming regulations that make it very, very easy to use a roaming partner like a KPN SIM on the 3 networks. But across the 13 operating companies – I think they have 13 different tower networks – our solutions are really looking for QoS and performance, and access to futuristic features that have been difficult for carriers to deploy, things like network slicing and even fixed wireless. I'm not saying that's all in there yet today for 3, but our customers are looking for the best performance on a Hutchison network that they can get. **And the only way to do that is to work directly in their network**. Could we already use their networks through roaming? Yes, but better to go direct.

MH: You only need one carrier relationship, and you can more or less work on almost any network, theoretically. It does always make me laugh when every single connectivity provider says they are supported on 600 networks in 200 markets.

RH: Everybody can theoretically do that. Most of the time it's the same 2 or 3 global MVNE vendors in the same MVNO solution. I mean, that's dollar for dollar, the easiest way to cover the globe if you're building an MVNO. But our values are most sophisticated. We really like those applications that are looking for peak throughput, a support system to call the host carrier, and adjust a tower if you even need to do that. We've done that for customers.

And that's by building what might look like redundant relationships, because we already had roaming onto AT&T, we added an AT&T direct relationship. We already had roaming into T-Mobile, we built a direct T-Mobile relationship. We already had roaming in a Verizon and did the same. Customers want something straight from the source because of performance, reliability, but also, yeah, pricing.

We didn't set out to be a voice company, but our Ascend product is an IMS service over the top of the carriers to aggregate everything

MH: Will you do other similar deals with other carriers in other regions, or indeed the same regions?

RH: Even in the same regions, yes. We have probably 12 EU IMSIs, all with varying different solutions. But yeah, we're always looking to add things. We added MTN last month in Africa. Could we roam into Africa? Yes. But a direct MTN profile is what you really want to do if you're driving a mission-critical enterprise application.

MH: One of the interesting areas we've been looking at recently is the demand for voice services for IoT applications. What do you do there?

RH: We didn't set out to be a voice company, but our Ascend product is an IMS service over the top of the carriers to aggregate everything. If you're using all these different mobile cores, you'd also sometimes want an over-the-top voice. It allows people to use one phone number when they're using our three native US profiles or our six, seven, eight North American profiles. It's portable then between those environments. The other fun thing that we've seen is the rise of private voice. So worker safety equipment, POTS, call boxes for residential, even retail. people don't need to dial it out over the PSTN anymore. They can bridge it to a call center and that can be all done within the same IMS network.

And then we have hybrid public and private IMS.