

**MULTISERVICE FORUM**

**GMI 2006 PRESS CONFERENCE**

*Conference Call*

Good afternoon, ladies and gentlemen. Welcome to your MultiService Forum conference call, hosted by Mark Fox and Rich Williams of Zonic Group PR. My name's David, and I will be your coordinator this afternoon.

I'd like to advise all parties who attend this conference call this is being recorded for replay purposes, details of which can be found through your contact list calls. If you haven't done already, please log on to [www.msforum.org/pressroom](http://www.msforum.org/pressroom), go to the press releases pages and download the PowerPoint presentation for today's call.

Without further ado, I'll give this over to Mr. Rich Williams. Go ahead, sir.

**Rich Williams**

Hi. Thank you for joining us this morning for an outline of GMI 2006, hosted by the MultiService Forum. The call will include spokespeople from the MultiService Forum Board of Directors:

Mr. Roger Ward, who's President of the the MultiService Forum and also with the Office of the CTO at British Telecom.

Mr. Naseem Khan, principal member of Technical Staff at Verizon Labs.

Mr. Dan Warren, an MSF spokesperson, also a Senior Core Network Architect with Vodafone.

Also we have Mr. Joe McGarvey, Principal Analyst with Current Analysis.

At this time, I'll turn the call over to Mr. Roger Ward.

**Roger Ward**

Good afternoon, ladies and gentlemen. Good morning to those of you in the U.S. Thank you very much for joining us. This is a very exciting day for the MSF. The MSF is a forum that's been in existence now for seven years. The work programmes that we have, we spend a long time preparing before implementation. What we'd like to talk to you today, our GMI 2006 programme, has already been a year in the building. The culmination of this will be our Global MSF Interoperability event this October.

If I could just take you through the pack, and ask you to move to chart number 2 which positions the MSF in the value chain of our industry, between the general front end technology exploration, and the very detailed design-specific, business-case and company-specific development that happens when a company makes a contract with a particular vendor to supply a particular solution.

If you click on that chart again, you'll see that in the middle -- the gap that the MSF seeks to fill is highlighted, where collaboration between both carriers and vendors, both competitors and collaborators, really makes sense. This includes collaboration around developing consensus on architectural framework, protocol profiling, proof of concept, feasibility and interoperability testing. In all of these areas, we really believe the MSF has a business proposition that really adds value to our members.

If you click onto the next chart, chart 3, this shows the MSF principal members at the time of this call. We have 42 members. We have major carriers in Europe and North America and the Far East. We have BT, Vodafone, Cable & Wireless, Verizon, SBC, NTT and Korea Telecom. We also have the major vendors -- Nortel, Cisco, Siemens, etc. And also some of the smaller, more aggressive and innovative players as well.

So it's a very good mix that we have with the Forum, but one of the problems with bringing together a group of some 42 carriers and vendors in an environment like a forum, is to actually get meaningful work out of that collection of people actually requires considerable organisation.

The MSF has considerable experience of meaningful collaboration. If I could ask you to click to the next chart, you will see the MSF 'framework for collaboration.' Over the years now, the MSF has really found an approach that works, with a focus on a rolling two-year programme, based in the beginning, on defining the best view of the architecture that the industry is working to implement. If you picture-click as I go down the stack here, you'll see some sub-bullets coming up.

The architectural framework gives the coherent big picture. But the MSF doesn't seek to compete with other bodies in the world that define architecture. It's really doing this work, to define a consensus on a base for the layer where the MSF really does add unique value, at the physical architecture layer. Key to this is defining a number of physical scenarios that then feed down into the work of seeing where the gaps are, seeing where there are too many options, perhaps, in major protocols that are going to get implemented in the next-gen networks for the future, selecting and profiling those protocols, drilling right down to interoperability testing, doing a lot of work around test specifications, and then some really large-scale interoperability events -- this thing we call GMI, that we're so excited, and we want to be sharing with you today.

GMI 2006, the Global MSF Interoperability 2006 event, provides the opportunity to get right down to the interoperability detail at the bottom of the stack where - over a two-year period we've taken some really hot issues that the MSF members wanted to collaborate on and will validate MSF Implementation Agreements in support of the MSF 3 architecture.

Currently we're in the middle of our 2005-06 programme. The beginning of last year was all about defining what we are talking to you today. A great deal of effort has gone into that work over the last year. The MSF meets face-to-face four times a year for a week at a time. We have two meetings a year in North America. We have one meeting in Europe, one meeting in the Far East. We're now into the second stage of that 2005-06 programme, really into the doing part, developing the implementation agreements, some 20 or so implementation agreements, that support the detail behind MSF Release 3. Development is well in progress and the test specifications are starting to be written. And this October, we'll be bringing it all together and to prove it out in this thing we call GMI 2006.

Now, if you can click to chart number 5, GMI 2006 objectives. At the beginning of this 2005-06 work cycle, the MSF members very strongly decided that they wanted to focus on IMS and demonstrating multi-vendor interoperability to achieve fixed mobile convergence supporting the IMS service framework, validating the MSF R3 implementation agreements, which cover, amongst other things:

- Roaming services across multiple network types;
- All of the QoS issues (session border controller, bandwidth manager) -- how those elements come together;
- The relationship between 3GPP IMS and mobile core network interoperability;
- IP carrier interconnect and interworking;
- And then also security of third-party applications, service brokering interoperability;
- Some of the network management issues;
- And of course IPv4/6 interworking.

If I click to chart number 6 --

### **Rich Williams**

Roger, I'm going to jump in for one second to remind people that the presentation can be downloaded. If you joined a few minutes after we started, at [www.msforum.org/pressroom/pr.shtml](http://www.msforum.org/pressroom/pr.shtml).

At the end of the formal remarks, we will open it up for your Q&A.

### **Roger Ward**

Okay. Thanks, Rich. So if I can pick up. I'm on chart number 6.

Its very difficult for me of course as I can't see any faces & I've got no idea if anybody else is on chart number 6, but for those of you who are, I hope this is making sense!

Chart number 6 is a top-level network view of the problem space that the MSF is trying to address. We are very much focused on the deployment issues that major

carriers and major vendors are trying to face up to in deploying solutions into a world of interoperating networks. We have to consider not only pure IMS operators, but also those who are coming much more from a fixed network background, who will be interested in implementing some aspects of the IMS, the IP multi-media subsystem, as appropriate to support services, but maybe not to the same extent of other operators.

The work that the MSF is doing is very much geared around the practicalities of the interoperability of these different network types, and the NGN elements that actually get deployed in them.

I'd like to introduce Joe McGarvey at this point. Joe, I don't know whether you could come on and pick up some of the business issues around this.

### **Joe McGarvey**

Thanks, Roger.

I just wanted to say, too, this slide is -- I think it's really important and even though it might appear really simplified, it's a great illustration of the value of the MSF's work, at least from my perspective.

While it's true that portions of the IMS architecture have been deployed in isolated networks so far, a little single-app deployment here or there, it's not until those deployments are taken out of isolation and tested in a multi-carrier environment that we can even begin to think about realising the benefits of IMS.

If you move to the next slide, which is slide number 7, I'll talk a little bit about what I see as the value of the GMI 2006 for both vendors and service providers.

I'll start by evoking probably a corny work force imagery. But I think it helps to contrast, at least my view of how the MSF differs from maybe a traditional standards body. When I think of your typical standards bodies, I get a picture of a classroom or scholarly atmosphere. The MSF, on the other hand -- no one objects, I hope -- is more of a rolled-up sleeves and a dirt-under-the-fingernails kind of thing.

The GMI event, in particular, it's extremely beneficial to both the carriers and vendors, because it takes deployment and interoperability issues out of that theoretical realm and into the practical world. The result is that participants, and even observers, end up with a much more realistic view of what it will take to build a next-gen network.

The greatest impact on the industry that the GMI brings, then, is that it allows vendors and carriers to turn a bunch of concepts and notions into a realistic set of blueprints for constructing an actual network.

Another way to think of the GMI 2006 event is a dress rehearsal for the opening night of a new type of service delivery platform. GMI 2006 opens up the opportunity, in my viewpoint, for equipment makers of all sizes to work closely with some of the biggest carriers in the world such as BT and Verizon and Vodafone. But in addition to getting first-hand knowledge of how these carriers run their networks and select equipment, participating in the MSF event also enables equipment-makers to show off their technology to major Tier 1 carriers and potential partners as well.

The MSF event provides vendors with an open lab, and the opportunity to test their equipment in an open and IMS-based architecture. Service providers, of course, benefit too. They get to work with a variety of equipment vendors, audition them sort of, just to see how they fit into their networks and how they work with even complementary products.

And I think Roger talked a little bit about the ability to feedback loops, sort of in the MSF. Another aspect of that is, I think vendors benefit from this tremendously. Because vendors tell me all the time -- the ones that are involved in these early IMS deployments -- that they're constantly getting an advantage from participating in these IMS implementations. From these various trials and deployments, they gain what they say is insight into what their future network needs are. Then they apply what they learn in these deployments to put their product development cycles.

The GMI provides the same sort of information source that participating companies that can then feed back into their engineering and product-development activities. It gives them the benefit of participating in an IMS-like deployment, even if they're not actually involved in one with an actual customer relationship.

Finally, and I think it goes without saying, that the GMI event is in the interests of the entire industry. If carriers can't come up with a cost-efficient means of implementing an IMS-based infrastructure, network equipment providers who have devoted increasingly significant proportions of research and development to IMS, they're not going to be able to recoup investments in that technology.

It's also in the general interest of both carriers and vendors to implement IMS in a fashion that enables carriers to reap the full benefits that the architecture promises.

IMS has to be done right. If it turns out that IMS does not empower service providers to roll out new innovative services in an accelerated fashion, or offer converged services that turn communications environments into productivity environments, the experiment's going to be a failure. This is important because for the first time since the IMS concept was floated several years ago, opposition to the movement is beginning to gain a voice. A growing segment of the internet community is beginning to characterize IMS as an unnecessary overlay that's basically just around to empower traditional carriers with another way of charging customers.

The argument essentially boils down to one question: Why should I pay a service provider increasing amounts of money for services I can pull off the internet for free? The challenge then to vendors and service providers is to make sure that IMS delivers the added value beyond basic internet services. That means services that a substantial proportion of the consumer-residential subscriber universe will find worthwhile enough to pay for.

So it's events such as GMI 2006, as I think, that will foster this sort of vendor-carrier coordination. It will help ensure that IMS is implemented in a manner that's going to make sure these finished products live up to the promise.

So, now, I'd like to turn it over to, I believe, Dan, to talk more about the IMS service [indiscernible].

**Dan Warren**

Thanks, Joe.

If you move down into slide 8, you begin to look at the kind of multiplicity of service provider architectures which are beginning to be seen in the deployment in this next generation of networks that they're talking about here.

Within the diagram you have four service providers A, B, C and D. Service providers A and C are being modelled as implementing the MSF R3 architecture, which is really what GMI 2006 is primarily focusing on.

In the top right corner you have service provider B, who is a pure IMS provider now. When we say 'pure IMS,' we're talking about somebody who implements everything according to exactly what it says in the IMS specifications, which are produced by 3GPP. But ultimately there isn't a great deal of difference between that operator and service providers A and C, who are implementing the MSF R3 architecture.

We'll see in some later slides the MSF R3 architecture actually pulls in a great deal of the functionality from IMS, but then just puts a little bit more of a practical real-world tweak onto the architecture itself.

In the bottom left-hand corner, you have service provider D, who is a non-IMS network. The examples given there are packet cable, or IP telephony service providers. I think you can also add onto that, realistically, the existing PSTN and any other existing service delivery function.

So there is SIP profiles flowing between each one of these network domains, and each one of these profiles is actually identified and defined by MSF, and these are also subject to the testing of GMI 2006 as well.

The point ultimately they were trying to make with this slide is that it's not just about what goes on within the MSF R3 architecture, but also what goes on between them. So the interconnect and interoperability between multiple service providers deploying multiple, different technologies into the environment is certainly within scope.

To see how that translates into a real-world, practical operator implementation, I think Naseem wants to talk about that as well. Naseem, over to you.

**Naseem Khan**

Verizon is extremely interested in GMI 2006 and we have made the decision also to host within the United States. As Dan pointed out, we will be really testing the various [indiscernible] profiles across the various service provider networks both Release 3 of IMS, as well as the non-IMS, which is primarily MSF Release 3.

The definition that we have right now, in the MSF world, will be the basis for developing the test cases for testing the PI points across the various carriers' networks.

With that, I'd like to move to slide 9. Slide 9 shows Verizon's target IMS architecture. As you can see, like any IMS architecture region, we have the notion that we want to see convergence, not only at the services layer but also at the network layer, having

the access technology and access transport to be not really influencing any of the network IP layer [organisation].

We want the IP layer, as well as the services layer, to be access-agnostic. We have the POTS support on the left-hand side as you see on the diagram, which is coming to a line [indiscernible] gateway, which works as a concentrator. So we have the PSTN support as well, which exists today, along with the support for IP phone, though the broadband wireline, which can be DSL as well as FTTP. We have the support for the enterprise customers through PBX, as well the wireless through Wi-Fi.

We also want to support the video-on-demand, and we have terminals that could be set top box, which is set-enabled. And then in the Verizon IP/MPLS network, which will be the unifying hyperlayer transport as the session controller. The media gateway controller for connectivity to the PSTN as well as the session border controller, as the device for security and net functionality.

At the application layer, we have applications which have the video application server, the feature server for voice, as well as the [AIN] application server, which can be accessed through the Powerway gateway function.

I think the important point is that we are going to use the IMS architecture to support all the services across Verizon. We are going to use the GMI 2006 as the basis for laying out some of the building blocks for this architecture.

With that, I would like to invite Roger for slide 10.

### **Roger Ward**

So, let's focus on GMI 2006. In implementation, the devil is very much in the detail. The chart that Naseem has just gone through, presents a very complex network environment. Last week in Europe I was putting out a similar chart in talking about BT's network. NTT and Korea Telecom, other very strong and active MSF members would have similar charts. The point about the MSF GMI event is that it actually provides a collaborative framework for very different operators and vendors to collaborate on defining the implementation agreements that actually make these networks really work.

And are very pleased that GMI 2006 is now publicly launched. In the UK, BT and Vodafone have agreed to collaborate on a GMI 2006 host test site. It's going to be at BT's Adastral Park Laboratories, Ipswich, Suffolk. In Korea, we have Korea Telecom providing a host facility. In Japan, NTT in Tokyo. In the U.S., as Naseem has just said, Verizon will provide host test laboratory.

But also, - as well as the five major carriers -- we've got a major independent interop lab, The University of New Hampshire Interoperability Lab, which is just north of Boston.

So those six sites will be providing facilities to support vendors who wish to come and demonstrate their ability to support the MSF Release 3 architecture, and the 20 or so supporting implementation agreements that the MSF has developed to underpin the detail of that architecture.

Now, were they to be individual sites, that would be sufficiently challenging in its own right. But in fact, we go one step better than that. We're actually providing high connectivity, QoS-enabled, global network to actually mesh these sites together so that vendors can turn up with one of the piece parts supporting the MSF Release 3 architecture and interwork with another piece part that might be in the U.S. or in Japan or in Korea.

Obviously, that's a tremendous opportunity. GMI2006 is scheduled to run over a two-week period, October 16<sup>th</sup> through the 27<sup>th</sup> in 2006. We envisage seven-day-a-week, 24-hour-a-day working, to fully exploit the various test combinations that GMI 2006 makes available.

To actually get that number of people and organisations together in such an environment so that they don't fall over each other really requires some skill! And here the MSF is heavily drawing on its experience. This is the third such interop event that we will be running. We did another one in 2004 we called GMI 2004, another one in 2002, GMI 2002. Each time we've done one of these, it's become bigger and more comprehensive than the one before.

Of course, this reflects the changes that are going on in the industry. If you think back to 2002, the big focus for carriers was on the gateway functionality between the old networks and the new. In 2004, it was all very much about implementing softswitch architectures. In 2006, we're very much building upon what we have done before and looking at full service delivery. And that is really what we have some pretty well-developed plans to achieve.

Just to give you an idea of some of the complexity we're talking about, in 2004 we had over 800 pages of test specifications to support the work we did. We had over 200 network devices that were interworked in this environment. We had over 100 test engineers actually physically on-site. And if you look at the people back in the companies, we probably had some 500 engineers working on this project. So really it's a very substantial investment that those companies prepared to participate can exploit.

Certainly in my company, BT, are very, very keen and enthusiastic, because by playing in a part of that, we actually reach the benefits for something, which of course across the piece is much bigger.

So that's the story of the MSF 2005/6 work programme, from what we're doing and how we're going to be testing it. But now let's look at some of the physical scenarios that we're going to be playing into this environment, and perhaps some of the technical issues around the MSF 3 physical architecture.

At this point, I'd like to hand over to Dan Warren, who's the 3GPP lead within the MSF. Dan is based with Vodafone in the UK.

### **Dan Warren**

Hi there. Previously I mentioned the interconnect between the different operator types and the different service provider types. Here we're looking now at slide 11, the

actual elements within the MSF R3 architecture. As I mentioned previously, these have some kind of mapping into IMS functions, as defined in the IMS architecture.

You still have the classic CSCF functions, the I-, P- and S-, which now manifest themselves -- the P-CSCF is part of the SBG-NE, which is basically brokering the incoming access from a range of devices. Basically SIP terminals come in be they fixed, mobile, and nomadics. And come to this point where the P-CSCF is also allocated potentially with the SBC functionality.

This then brings you also to consider the network-network interface, where there's also the SGB-NC, which is doing some form of brokering on the NNI to a further network -- into MSF R3 or into IMS domain pools.

In the service domain, there is a range of service application functions in the upper part of the cloud, so there's parlay applications, sitting above parlay gateways with an OSA SCS there. So parlay services certainly are in scope and are accessible.

There's just the classic SIP application servers, and there's also a service broker, which is the equivalent of the 3GPP SCIM function.

You also have media servers there. And then alongside the media server is a bandwidth manager. This is applying some sort of policy but the bandwidth manager becomes even more significant as we move into considering a situation where the access domain isn't owned by the same carrier as the IMS domain. Then there are some quite significant bandwidth manager interactions that need to take place, particularly to enable optimal call routing, which we'll discuss in the later scenarios.

Then the final two main nodes we probably need to consider here are the static call agent and the access gateway. These are again, more like the classic softswitch architecture, but they still exist within the IMS domain for interworking back out to the other forms of operators that we discussed previously as well.

So, moving on to slide 12, I'm going to hand it back to Roger to go through the different scenarios which are considered in GMI 2006.

### **Roger Ward**

Okay. Thanks, Dan.

So you see there's a great deal of complexity here. At the beginning today, I said the MSF started its 2005/6 programme by looking at functional architecture, work that established the MSF Release 3 functional architecture, as a basis for our detailed work on physical architecture -- which has resulted in the definition of the various scenarios that the MSF members have decided that they would like to work through in the GMI event.

The scenarios progressively build up - in Scenario 1 we consider a single domain with nomadic subscribers, including both terminal and subscriber nomadicity.

And then in Scenario 2, having proved out a single simple domain, we add on value added services, including SIP and parlay/OSA applications.

In Scenario 3, we're adding the true-world environment where you've got IMS interconnect between subscribers in the MSF R3 domain and a 'pure' IMS domain, with both MSF R3 and IMS appearing as peer IMS networks.

In Scenario 4, we're adding roaming of subscribers between those domains. Particularly important is service roaming, including both terminal and subscriber mobility.

In then in Scenario 5, which I guess is really what's been described the 'mother of all scenarios,' it's really the whole shooting piece. The practical environment that's likely to be encountered in the real world, which is the roaming of subscribers between MSF R3, 'pure IMS' and MSF3 networks, including both terminal and subscriber mobility.

By having that sort of progressive build-up, it means that when we're bringing probably some 30-40 participants together at 5-6 laboratories around the world, testing out 20 or so implementation agreements, in an environment where we can progressively gain confidence before we move onto the final step.

And certainly our experience before has shown this to work very well. I think quite unique for GMI 2006, in comparison to the earlier MSF interop events, is that we're also tackling management and provisioning of service and provisioning of VPNs and simple fault management. I'll say a little bit more about that in a later chart.

But for now, if I could actually turn back to Naseem, to talk about Scenario 2 in some more detail in chart 13.

### **Naseem Khan**

Thanks, Roger.

If you go to slide 13, this slide talks about the use of the GMI architecture for Scenario 2, where the objective is not just the nomadicity across the subscribers and terminals, but how it can also provide the value added services. We'll be using this scenario to test primarily the value added service.

As you see toward the bottom half, you see a variety of terminals. One is the MSF Release 3 end point, which is connected to the access gateway. The IMS fixed terminal A, which is connected to session border gateway NE, and the fifth IMS nomadic end point. And you see two dotted lines; basically that reflects that this end point can be registered to two different proxy CSCFs. In this case, the SGB-NE play the same role as the proxy CSCF. So the two of them can be interchangeably used by the same end point for the registration.

And you also see the fifth IMS fixed terminal B, which is connected to SGB-NE. So the whole purpose is to see how the calls are being handled between the mobile terminals and subscribers, as well as how some of the value added services can be pulled into the test scenarios.

Some of the elements, as Dan described, play a very important role here. The bandwidth manager is responsible for call admission control. The static call agent is

the classical softswitch. The SGB-NE, if you look at it, it's primarily there are two components to it. The signalling as well as data. The data signal, the data component of the SGB is responsible for prioritizing the voice, in terms of the Quality of Services.

The way we'll perform the test is that we will take the fifth IMS nomadic end point and first register it with one of the proxies. And then primarily move it to another proxy CSCF and see how the traffic is going between this end point and the other end points, which are the fixed terminals A, B as well as the R3 end point.

The features and the applications that we have in mind, in terms of the value added services, would be provided to the parlay [X] application server, and the features could be single-number service, rule-based call handling, location-based directory as well as [presence-]enabled conference calls. But they will be involved to the parlay [X] gateway. At the same time, we'll be using the features from the SIT application server as well.

After this, I will hand over to Dan for the next slide.

### **Dan Warren**

The next slide is kind of a closer focus on Scenario 3. With Scenario 3, we've titled it] IMS Interconnect. The fundamental purpose of Scenario 3 is just to proof-test this NNI which will need to be in existence between an MSF R3 architecture and an IMS network. As I previously said, that NNI will actually be pretty much along the IMS-to-IMS interconnect profile. So it's not a significant increase in terms of the additional network functionality within the IMS and the MSF R3 domains, which are being tested at the time.

But given that the two domains that have to be interconnected tend to be geographically remote, as previously talked about with regards to the overall test architecture. This is a very significant proof point for the industry as a whole to prove. The fact that you can interconnect IMS networks or IMS-like networks from one IMS domain to another across a proper active network will be quite significant.

It's definitely important, but possibly more important is when you step through Scenario 4, where you add on some service interconnect, and when you get to Scenario 5, which is considered in slide 15.

So Scenario 5 gives you everything. It is, as Roger described, the mother of all scenarios. That term is being used rather glibly; it's not a bad thing. It's ultimately where a fully interoperable, fully optimised IMS interconnect would take you if you're in a situation where you could also optimise the bearer.

So now, instead of the bearer following the signalling path as is dictated at the moment by 3GPP and TISPAN and ATIS specifications for the IMS domain. The significance here is that the bandwidth managers from the various IMS domains are able to reach down into the access domain and allocate the bearer across networks, which potentially are not related to the carriers that are operating the IMS domains.

And what makes this significant -- an example that I've used a few times when I've been describing this:

If I'm in a hotel, and I'm calling a person who's three floors below me, and the hotel may be situated in Germany (as a good example, somewhere where some of you were last week). From Germany, the call routing would go back to my IMS domain, which presumably would be in the UK, and I might be calling Naseem. The signalling would have been passed from my IMS domain to Naseem's IMS domain in the U.S. And would then come back to him, three floors below me, in the same hotel.

But a bearer path would follow that same path from Germany to the UK to the U.S. and back to Germany again, it would significantly impair the Quality of Service on the basis, purely due to the physical latency, due to the distance that the bearer path would take.

What MSF Scenario 5 in terms of test is the ability for bandwidth managers within the IMS domains -- in this example, the IMS domain in the UK and the IMS domain in the U.S. -- to reach down and allocate based on policy and allocation of the restricted end points of the call, to allocate bandwidth within networks that actually aren't associated with the IMS domains at all.

Clearly there are some quite significant commercial issues with regard to the relationships between various domains that will be involved. But to be quite honest, that's not really where MSF is, and there's no point in getting into those commercial discussions until somebody can prove it technically. And it's that technical proof point, that the ability to optimise the bandwidth is what Scenario 5 is all about.

And on that, I'm going to hand back to Roger for a discussion on the management part in Scenario 6.

### **Roger Ward**

Thanks, Dan.

So finally, it's not just the basic transport and signalling elements of the NGS we have to worry about, but we believe that in a real network, we have to worry about the management of it as well. If I look at chart 16, Scenario 6 talks about the management of these network elements.

A highly distributed architecture obviously requires remote management. I think the critical thing really is to really try and move from the earlier NGN architectures, which were reliant on proprietary systems -- stovepipes of management functionality to true multi-technology, multi-vendor support to actually cope with the explosion of management data that networks like this generation.

The MSF -- as I say -- has been going for seven years, and we've got a lot of expertise in the network layer -- but obviously we recognise that we're not a leader in the management layer. But fortunately we've been able to, over the last year or so, strike up a very strong relationship with management experts in TMF, the TeleManagement Forum.

We now have an agreement with the TMF in that we're working together to try and focus on three hot issues - the low-hanging fruit for management in what we're doing in GMI 2006.

The first one is provisioning of multi technology VPNs between sites. The provisioning of value added services in a sort of VoIP/IMS environment, the fault management. And we've got a lot of support from the TMF, particularly the MTOSI and IPNM working groups. And we're looking for vendors who do this sort of thing in the TMF, to actually be participating in GMI 2006, which is really quite exciting for us, because it's a sort of checkpoint that the work we're doing in the MSF is really valued across the industry.

So really I think we've been talking probably for far longer than we intended, but I think it makes us realise the complexity and the depth of the beast that we've defined over the last year in this GMI 2006.

In summary, looking at chart 17, we very much hope the work we're doing will help the industry move IMS convergence from theoretical to practical. We're putting in a considerable amount of effort with five carriers and a major independent interop lab to address key interoperability issues before network implementation. There's a lot of complexity in this and we believe we're providing an industry framework for service interoperability, and a global framework that sets the stage for worldwide adoption of IMS architectures.

And as I said really when I was talking to some journalists the other day, at GMI 2006, if everything worked when it came together there would be no point in doing it, just as much as there would be no point in doing it if nothing worked.

The point about collaborative ventures such as this is, we're trying to get to the 70% point, where we're proving the concept, and we're finding things that maybe we need to do more work on. You know, 30% of lessons learned. And for us, if we get to that in GMI 2006 we will be very, very happy. It will have been an event well worthwhile.

So, I've said my piece. I'll hand back now to Rich to do the wrap-up and perhaps tell you where you can get some more information on all of this.

### **Rich Williams**

Thank you very much for joining us. There is more information listed from the white papers that are available from the MSF on slide 18. A reminder that a copy of the presentation is available on the MultiService Forum web site. At this point, operator, if we could open the call for Q&A from the audience.

### **Carol Wilson**

Hi. I was wondering if you could give me a quick overview in terms of the MSF architecture you're referencing here, and what its relationship is to the 3GPP IMS architecture.

**Dan Warren**

This is going to be very much my take on it, but to give you my background, I've been involved in IMS in 3GPP for the last five years. Coming into MSF and understanding what they were trying to achieve with the GMI 2006 architecture, it struck me immediately that there was considerable common functionality, even though it is named differently.

I don't think that's necessarily coincidence, because of the way that the industry was going, but the relationship is, it's pretty much that the functions, which are defined in 3GPP -- and you need to bear in mind that 3GPP is a functional architecture, not a physical one -- the functions, that map into specific nodes within the MSF architecture, and quite a significant part of the work in getting to the GMI 2006 architecture, was understanding which of those mappings made sense.

So when you consider -- particularly when you consider the TISPA add-ons] to 3GPP, such as the requirement for Service Border Controllers, you can see that P-CFCS have been pushed down toward the service broker controller in the MSF R3 architecture.

And that is probably one of the most significant shifts, I guess. It means that the SBC is now performing and the kind of brokering between two network domains and NAT and firewalls, but it's also performing -- the initial decision-making about where that call goes next. The P-CFCS functionality in that area is quite basically [indiscernible] associating with some other schemes [indiscernible] functions.

In addition to that, the MSF already had some of the interworking functions defined from their R2 architecture, and so the static server and being [indiscernible] architecture maintained the from R2 to R3, they become the equivalent of the 3GPP MGCF and Media gateways.

Beyond that, every other function is pretty much there. So you have parlay gateways, stand alone SIP application servers, service brokers, an HSS where the HSS is pretty much just the IMS-related part of the 3GPP HSS, excluding the existing mobile HLR.

So there's a tight coupling, but it's not exactly the same due to the physical and functional differences in the architectures.

**Unidentified participant**

[They're] very much focused on the practical, physical implementation of this for real carriers.

**Unidentified participant**

I'd like to ask [indiscernible] a question of why, when the MSF decided to host a network, why a global implementation was chosen. How you guys are managing that, between the sites.

**Roger Ward**

By having a global interop event, we get a tremendous amount of extra leverage from the work that is actually going on in the major regions of the world. The alternative to have one big site in the UK or Japan or Korea and have everybody travel doesn't really seem to fit very well with the sort of distributed architectures that we're talking about implementing.

So I think with the sort of test environment we're talking about, the focus is distributed, the industry is global, the nature of a forum is collaborative-- you know, you've got no contractual agreements between any of the members. It's only working because they all believe there's value in it, and they put a certain level of effort in.

And I think by doing this, we just get something where the sum of the parts is really so much greater by having this sort of concept of this global test environment.

Now, the coordination is somewhat challenging, but we've done it twice before successfully. The MSF is employing a paid project coordinator. We're drawing on our plans, our experiences, the lessons learned before. So we're very confident that we can deliver against this.

But it does really provide, if you like, one highly distributed single global test environment to prove out the implementation agreements in support of the MSF R3 architecture. We believe that's a cost-effective thing to be doing.

Does that answer your question?

**Unidentified participant**

Absolutely.

**Charles**

On the provisioning of value-added services, will that include mobile device management services?

**Dan Warren**

I'm not expecting it to. But maybe it's a point that we should have made with regard to [indiscernible] that roaming, which is included there is nomadic rather than the classic kind of mobility [indiscernible]. So the access networks are considered to be agnostic. It could be that it's a [major] agnostic, and so a [major] access network. Or it could be one that is completely different. The point is that there is the ability for the end user equipment, the client to attach [indiscernible] a domain that isn't necessarily associated with the same carrier as the IMS domain.

What that domain is is not open to testing.

**Carol Wilson**

Carol Wilson with a follow-up. This is a good question for Naseem. From Verizon's point of view, do you feel that this kind of global interoperability testing is going to

speed Verizon's ability to deploy IMS? And could you just kind of give me an update as to where you are?

**Naseem Khan**

Okay, Carol. I truly believe that the whole purpose of the GMI 2006 is to assess the maturity of the technology. And again, Verizon is participating in the GMI event for the first time. But I believe that the vendors are not 100% there where they should be, and the standards are evolving in a diverse direction. You have 3GPP [indiscernible], [ITUT]. There are issues [indiscernible] to the policy control and management, which are being addressed in the context of the access technology.

So although there is some convergence, there has been an effort, but in terms of the implementation, I see that it's very important to understand what really is vital from offering a service perspective, which bits and pieces of the standards to take and implement them.

Verizon is very much interested in expediting it through the GMI effort, and this is part of our strategy in terms of doing the testing. We are doing some internal testing as part of our [indiscernible] lab. And GMI will supplement that effort and allow the industry to progress faster in converging to a single implementation.

And I think it's good for Verizon, it's good for all the carriers.

**Rich Williams**

If anyone has questions they want to ask, post-call, in the U.S., feel free to call me, Rich Williams, at 919-554-3532, or Mark Fox in Europe at +44-870-760-9248.

I think we can thank everyone for joining us today. Again, call either Mark or myself with additional questions, and we look forward to providing further updates in the future.

**David**

Okay, ladies and gentlemen. Thank you for joining, and that concludes your call. I'd like to ask the speakers just to stay on the line, and everyone else can disconnect. Thank you.

[end]