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assistive devices to maximise the foreseeable use of the persons with disabilities.

And it should acknowledge the state.

On EMTEL, we have the work to be done related to emergency communications. The exact parties, the harmized standard for the accessibility and interoperability of emergency communications and the answering of emergency communications by the public safety answering points, PSAPs, including the single European Emergency the number 112.

The first phase is the publication of the technical specification. This has already been done. This is the TS that will be presented now.

And the second phase will be the publication of the harmonized standard.

The STF 642 that was created with the experts that will be presenting after me, they have done the work on the TS and its publication, and they have delivered, also, a mature draft of the harmonised standard to the publication.

And, of course, we have the work with the other groups through liaisons and different meetings.

And I give the floor to Chaitanya who will speak about the spoke and the dissemination activities.

>> CHAITANYA JAVVAJI: Thank you, Cristina, for giving me the floor.

Hi, everyone. Good morning and good afternoon and good evening.

My name is Chaitanya.

The STF 642, TC EMTEL work, the project is STF 642 produced August 2024, in the last month.

Following the items we have produced, the technical specification, the title of the document is 'Emergency Communications, Accessibility and Interoperability of Emergency Communications and for the Answering of Emergency Communications by Public Safety Answering Point, Including the Single European Emergency Number 112'.

And the stable draft, emergency communications, EMTEL, and accessibility and interoperability of emergency communications.

The stable draft of 303 919 is the same. It becomes the harmonised standard.

The TS can be seen as the preview of the harmonised standard, and it will be this standardisation. It's general accessibility requirements for the ICT products and services.

So it's meeting the requirements of 303 919 and the ETSI Human Factors.

Thank you.

And the scope of 642 is accessibility and interoperability emergency communications, how organising the efficient emergency communications.

I can't see it. Can you move the ASL interpreter video? I cannot see the text.

Thank you.

The specifications are corresponding to the European Accessibility Act and the emergency communications network to PSAP and supporting devices and the multimedia-based requirements and conformance tests.

We have performed the project of STF 642, we have widely reached the audience to target the interest in creation of technical standards and support of implementations of European laws and public policy, especially in the ANEC. It's a European consumer voice in standardisation. This is good for implementation to the meeting of the European laws and public policy. This meeting is held online. Our EMTEL chair, it's Cristina, who is with us in this meeting.

And myself, STF 642 leader, I also presented to the ANEC. And we have various standardisation questions. There were about 20 to 25 participants that attended the meeting. Some were EAA, European Accessibility Act, parties.

The mode of meetings are carried out online and in hybrid meetings.

We, the STF 642 team, has presented various STF work progress from the start of the project and updates about the development of technical specification 303 919. We have received various review comments from the members of the group. And we addressed the review comments and feedback through the development of TS 303 919 and all status updates during development.

Move to the next.

Following the EENA conference held in Valencia, Spain. Again, the presenter is Chair Cristina, presenting what activities are carried out and the outcomes of the project.

This conference is mainly to Spanish language. For the English speakers, the live captioning is provided so you can see on the screen the image on the left side. It's the live captioning.

And there are about more than 100 persons that attended this session.

Again, we have received various questions related to the STF project, especially to the draft of our TS 303 919.

Following is the NENA conference, the same year, and the venue is in Orlando, Florida.

The presenter is our STF expert who is also the rapporteur of the project.

The audience is about 50. He presented the overall agenda of the STF work and the outcomes of the projects and the deliverables, how it could be new things in the draft.

Thank you.

I move the floor to Mr. Gunnar Hellström. Thank you.

>> GUNNAR HELLSTRÖM: Thank you, Chaitanya.

I want to describe what our documents contain and how they can contribute to accessibility of emergency communications.

We have requirements in this European Accessibility Act about emergency communications, and the communications is the part between the person in the emergency and the first point where these calls reach and get sorted out and found out what assistance they need.

And the Act says this, that we must ensure that the emergency communication using voice, text, including real-time text, is synchronized and where video is provided is also synchronized as total conversation and is transmitted by the electronic communications service providers to the most appropriate PSAP.

So we have accessible media in the communications, which is voice, text, and video. Video, you can use for sign language, real-time text for text. it shall be provided to the most appropriate communications and to the one who knows how to arrange for the rescue.

The next requirement in the Act is that emergency communications to the single European emergency number 112 shall be appropriately answered by the most appropriate PSAP using the same communication means as received.

So there must be a proper answer. There must be the capability to handle the calls in total conversation properly.

And the third one that is not really expressed as an essential requirement but is definitely needed for providing the other requirements. It is that member states should, in addition to their requirements, in accordance with another directive, be able to determine a relay service provider that could be used by persons with disabilities.

So relay services are needed and since the emergency center is required to handle texts, it may be expected that they can handle the text communication directly. But sign language competence among call-takers is very rare, so it's expected that the relay services translating between sign language and voice is needed to be included in the communication rapidly and efficiently.

So that is three of our requirements, and we have then responded with an overview of the requirements and intentional aspects.

So here is a list of the contents of the document. We have punctual services.

The call goes to the provider to handle the emergency call, and then that one found the way to the proper emergency center, the PSAP, through the emergency IP network, and we're talking about the IP-based communication here because the old circuit switch ones are fading away. When the standardisation is ready, there will barely be any circuit switch calls available anymore.

And we have also the last part, what we call supporting services. The relay service for translating between different modalities, sign language and voice or whatever, and we may also need language translators and experts to bring into the communication.

We have a set of annexes. This is to be a harmonised standard by this request, and we are obliged to have a cross-reference so you can find a mapping from the requirements in the Act to process in the standard.

We have also a row of test descriptions for verifying that the requirements are met out in the field.

And we have a chapter about use cases where you can read about how it's expected to work and then also a cross-reference between labels that point to the requirements and where they are met.

Next slide, please.

So I described that we have a chain of functions. We have the user term, and we have the communication service, the IP network for PSAPs and the PSAP. We have a technical standard describing these already, TS 103 479. It's called NG 112. It has a companion in North America called NG 911. So we have parallel standards describing approximately the same thing in technical terms so we can have efficient implementation. Industry provides things to a big market and also, hopefully, have support for emergency communications in the world, as we are expected to have while the EIA only says that we should have it Pan European. You must be able to travel and call 112 and get support wherever you are rapidly.

We are basing it on the SIP technology, which is a very common technology for Voice over Internet Protocol and mobile systems. That can handle audio and real-time text and video, if that is provided by the provider.

And we are, of course, routing the calls to the country of the emergency. That is a strict requirement that the persons who are experts in their area should handle the call.

And we're looking at including the relay services when needed, mainly for sign languages, and that can be done by the use or better by the PSAP personnel, the call-taker.

Next slide, please. Yes.

There are, I think, five or six standards in development as a response to the Accessibility Act. One important one is the EN 301549.

It's an accessibility standard while the first one at the top of this screen is about our production first. The TS 103 919. Later, it will be translated to a European norm.

, 301 919.

These are addressing the emergency to the country where they have the emergency communications networks.

They include location information. There's specification of additional data about the emergency communication.

We are requiring communications interfaces.

We are requiring call-back. They must be able to call back if communication fails or if they have something more to discuss.

And we are discussing the inclusion of relay service in a good way for these emergency communications in a multiparty fashion so you still have connection to the call-maker and support by interpreting.

While accessibility is also specified in this more general accessibility standard, the EN 301 549 that is produced in the human factor group where we have other aspects of accessibility.

We have the accessible user and the interaction with the device. We have the support from assistive technology, for example, if you need other external devices for reading -- like if you are blind and can handle Braille, you can have an attached Braille reader.

And, also important, what you are using for everyday communication should be the service you use when you are in an emergency because that is the one that you are familiar with and know and remember how to handle.

So, therefore, it is a strong link between these two standards, the general accessibility standard, by HF and this one about emergency communications from EMTEL.

Next slide, please.

Here is a picture where you can see the chain with originating service on the left-top. users have phones or tablets, and they call from that when they're in an emergency, calling 112 or something looking like 112.

And they have service providers conveying these calls to the right side where you have the PSAP, the emergency network and the people and devices handling the emergency call.

And then at the bottom part, you have the supporting services.

The best is the PSAP decides what service is required. For example, relay service, they understand that it's a sign language call, and they invoke rapidly the right sign language interpreter, but it's also possible that the user is to used to including relay services in the call, so they do it as they usually do, and you will have the invocation in the left side of the bottom row here. Invoking relay services by users, which should be a fallback method, but we'll try to make it possible and fully functional as well.

So those are the functions involved in what we are talking about and how we're specifying on what services they shall provide and how they establish efficient emergency communications.

So the technical part is the closest, seven to 10, where we have the technical requirements per row in the chain.

We're dividing the user equipment between SIP-based, which are regular VoIP devices, and we have IMS SIP which are the mobile services. They also have the technology-based SIP but in a more thoroughly specified way and separated from other SIP services.

And then we have a small corner describing how other technologies may evolve and also be required to reach emergency communications and how that will be possible in a neat way.

We separate communications in different technologies. We have the SIP ones, which are used as VoIP and total conversation nowadays. We have the IMS SIP, which is the mobile services. Here, also, other, where one specific other technology is mentioned. It is PEMEA, which is a standard for emergency apps, which has been a big topic in Europe. We had very heavy fragmentation. Every country wanted to have their own emergency app, and they were not working from country to country. So it is an effort in this standardisation to make it possible to travel with emergency apps and use them everywhere.

Next slide.

Next chapter is nine, about the emergency communications networks and the PSAPs. So the PSAPs are usually surrounded by an IP network where you have routing functions to reach the proper PSAP that has the geographic knowledge and have time to handle the calls.

This one currently has only SIP interfaces as described in TS 103 749, the NG 112 standard. That's the base all the time.

We have the need for routing between networks so that the call may enter in a home country of a travelling person but you need to route the call so that it ends up by the PSAP in the country of the emergency.

And then chapter 10 is about relay and other supporting services where you need rapid invocation when you discover that there is a sign language person and you need to understand which sign language it is and connect the proper relay service.

And we have some technical help for doing that.

Next slide, please. Maybe we can see part of that.

We have, also, a chapter with tests, which is required in these kind of standards.

I see I need to rush on a little bit.

These a technical tests, and it's possible to do technical observations if the components in the chain perform well.

Next slide, please.

And we have mapping between the Act and the standard.

Next slide, please.

I bring up a couple of accessibility problems and solutions. We have a requirement saying that the emergency communication is routed without delay to the most appropriate PSAP that is qualified and equipped to appropriately access and manage the communication.

That's a challenge if you have a sign language user from Norway standing in Italy and having an emergency. How can we have a rapid and efficient communication then? You probably need to connect the Norwegian Relay Service, and you have a risk that you don't even have matching voice languages. So that is a challenge. We have possibilities for requirements of how to solve this.

Next slide, please.

It's probably another accessibility problem.

Can I have the next slide?

We have another requirement that is a challenge, answering emergency communications shall use the same means as received -- in the received communication.

So that means that if you use video, then video must be enabled. If you use real-time text, then real-time text must be enabled.

But, also, the language must match. You must have an indication of what language the calling user wants to use.

We have means to do that and a possibility for the PSAPs to sort out and see beforehand what language is required and send it to a proper call-taker and possibly also invoke language translating services.

And we have the requirement to handle emergency communication from travelling users equally well as when they are at home. That is causing a lot of requirements to be quite tricky but challenging and a thing that we definitely must solve, of course, when we have an act requiring it from us.

I think that's the end of my presentation.

Have a look at the next slide. Yes.

I want to hand over to Wolfgang, who will talk a little bit more about the technical side of this.

Thank you.

>> WOLFGANG KAMPICHLER: Thanks, Gunnar, for this great introduction.

So I will continue talking a little bit about interoperability.

Gunnar is introducing this conceptual architecture. You remember the drawing in the slides. We saw the different domains and different systems and different services in this picture.

Such services share interfaces. Usually, you have the services that talk directly to each other. Such an interface is a point where they intake. If you're sending an email, the intake is an email server. If you're browsing the web, the client interacts with a web server, and there are standards in between that describe the protocols, which are the information to be exchanged.

Usually, we have different cables that are specified and different communication.

What we have described is the implication.

If we have protocols and standard interfaces, we have to allow different systems to work together seamlessly.

As Gunnar mentioned, it needs to be understood what real-time text means if that's what is used.

If that does not work, if the interfaces are different and the services do not understand each other, then they may misinterpret -- or even do not understand the data, and this leads to errors and inefficiencies.

Let's say we know from the daily business here that there are some services like messenger applications that do not work together. So you actually cannot send from, let's say, WhatsApp to Signal directly.

I just asked ChatGPT about the challenges. The first response you get is protocol differences.

So they have different interfaces. They work in a different way. So it doesn't work together.

And the other thing that you get is encryption. If you have different ways to encrypt data that is shared or have different payload types or codeex or whatever, it doesn't work.

Identity and addressing, you need to know. This need to be routable in the network. Currently, I think the only solution is if you have friends at one domain and the other domain, if you just copied the text, you need something in between to bridge the gap.

With our specification, we found a way to avoid this. So we have the services, and we have common interfaces. I will talk a little bit about what we used in order to meet the requirements that were mentioned by Gunnar.

Next slide.

Yeah, important to know is that we've defined interfaces between systems, and those interfaces are not visible to the end user. So, as Gunnar mentioned, TS 103-919 is usually not visible to the end user, but it's the client of the end user that talks with the services in the back, and those interfaces are part of the specification.

Requirements for the interaction between the user and client can be found in EN 301549.

Just consider you have a microphone and speaker on the device. You have a camera and display. That is what is used by the device, like an audio stream or a video stream or real-time text stream, that's forwarded to the other services, and they understand it, thanks to the common interface.

So when we look at the domains that were introduced by Gunnar at the beginning, accessible emergency communications requires different services, different building blocks, and we focused on VoIP, IMS, and TS 103 479 and the protocol that is the common technology or technical interface for IMS, VoIP, and NG 112.

That's the protocol used to manage the multimedia sessions, including audio, video, and text.

The good news is we did not have to invent something new. There's things in place for the communication. We also know the NG 112 and NG 911 specifications.

There's the RTP which is responsible for transmission of the multimedia data, such as audio, video, and text.

HTTP, you use it if you browse the Internet, but it can also be used for services to expose an API. You just send some regress to servers and get the response back like regress location information or regressing mapping information to know which PSAP is responsible for a certain region or certain location.

Next slide.

So those things are, let's say, in each of the domains and fulfill a certain purpose. So just looking at the drawing here, we have the device terminals and user terminals.

So there's an interpreter service. They typically connect to originating service domain. So the support domain is actually just connecting to the Internet and providing services like VoIP. We also have the PSAP service domain that Gunnar mentioned. And within that domain, we find the service for the routing purposes. This is important because we want to route actually based on a certain language or a certain modality that is selected by the end users. So we need to understand how this is introduced to the routing infrastructure. It needs to be consumed, and then the routing needs to decide if this language is required, we need to send it to a specific PSAP and, last but not least, to coordinate that.

We need the kind of mapping service, as mentioned before. This is the mapping service. I have the location and I have a need. I want to get to the proper PSAP. So this depends on the PSAP models that we have in Europe. Some countries just have a single PSAP that serves a single number.

Other countries like Austria or Germany have different numbers or federal states. So, yeah, you need to know what route to get to the most appropriate PSAP.

And what we have defined in the document is the interfaces between the device domain or the path or the chain that Gunnar mentioned, end to end, so from the device to the PSAP. It's very important that all the domains involved are actually understanding the information that is being exchanged. Do not remove it or do not change it because otherwise we would not have the ability to route to the most appropriate location, for instance.

Next slide, please.

So we also need to deal with the situations where we have, for instance, a user in a location B but connecting to a service that resides in location A. Just think of VoIP service that you're using and you're travelling abroad, but you're still connecting your VoIP client to your home country. Then, if you do an emergency call, you will provide a location that is not known by emergency services or the PSAP services in your home country.

So the mapping service doesn't know what to do with this location B because it just serves domain A with service boundaries defined for domain A.

This is included. It's not nothing new. It's known in the industry for certain areas. They're using the capabilities of the Forest Guide. It's the next level in the hierarchy of this mapping service, and it knows about the mapping services in certain countries.

So it knows, okay, where do you have ask for location B. It doesn't know about the PSAP. It just knows about the service in service domain B which would have to ask to get information about how to route to PSAP B.

So this, on the one hand, requires that those services are connected. So we expect that countries share their infrastructure, interconnecting infrastructure, and also run such services.

But since this is a requirement, I think it's something that needs to be implemented and needs to be deployed and configured to make sure that you can route in such a situation.

And there is another use case, I think, that's shown on the next slide, which -- just move on to the next slide, please.

There's situations where we have support services that is located in a domain, A, for instance, or connects to domain A and the user is in location B and would like the use the support services of its home country, for instance. So that means that even for this support domain, the supporting services, we need a solution, which is also described in the document, that allows the user which is currently in location B provides information to PSAP to tell about the support service that would like to be had in the emergency communication.

And since we assume the services are connected to the PSAP service and domains are interconnected, we can even provide this service from domain A to PSAP B. With that, I think we have introduced a feature that is also well known. It's an extension that allows the user to transmit information about the preferred service to the PSAP. So it's actually a reference or a link or URI that points to the service that can be bridged into the communication in that is going on between the user here that is located in B and the PSAP that is responsible for the location B.

There's another thing that I did not mention before. Just one back for a second.

There's a bridging service which is also important because if we have three parties, it's kind of a conference. And the bridging service makes sure that any media that is in use in a specific emergency communication is bridged so that if user A, for instance r using real-time text, the bridge would be responsible to bridge the audio and the real-time text with the interpreter service and the call-taker.

Now move on to the next slide.

In this slide, I will try to describe which protocol elements are used in the accessibility emergency communications.

As mentioned by Gunnar, we have a protocol. This is kind of my idea to graphically introduce what we're doing with the protocol. Perhaps it's a little bit difficult to explain. just consider a message header and a message body. Within those things, we have the session control and the location information, for instance. So the session control provides us with starting and stopping a call. It's methods. It's about service URNs, and we have information for the cortex. So if you connect to the PSAP for emergency communications, all of those are provided in certain areas. We have the ability to provide location. So this could be a reference or a location value. So, actually, if the capability is there to get information, for instance, GPS, then it would provide this S value.

In addition, we have the capability to provide skill-based routing. So if the user has the ability to set the language preference, this information can be used to, for instance, in the message description part, in the message body just below where we describe the media, and we have the capability to describe the language preferences.

The location was mentioned. This is personal data information which also may provide service information.

And we have different emergency numbers. We have 999 in the UK and 112 in Europe. Those translate to the service URN. There's a common reference to identify specific service. And there's subservices, like SOS, fire, ambulance, police, that may be used in several countries like we have in Austria.

Next slide, please.

The other protocol element that we'll be using and that is specified in the document is the real-time transport protocol. You have the header that contains the media type, the payload type, and the sequence numbering, timestamping, and so on. It supports transmission of media. This is the protocol that transmits the actual information. It also supports the multiple-party configurations. If you have the bridge in between, then the bridge will receive different sources and will forward it to all participants.

Perhaps quite interesting here is to understand that the media streams may be combined in something we call total conversation. So this is just a red box that means if you have audio, video, and real-time text in your session together, then it's something we call total conversation. There's a supporting protocol. It's the control protocol of RTCP. It's part of RTP. It's if you have audio, video, and text together in the same session.

Next slide, please.

So here we have the HTTP protocol. This one has also the same structure. It's quite simple to explain. In the message header, you have the transaction information. We have message content. We may even have web socket information here for media and data channels, which is called WebRTC. There's protocol parts, for example, used to get location information, as mentioned before, or to get this mapping information or to interact with the element we've introduced as Forest Guide.

And other technologies may use HTTP for session management and media transport.

Looking into the message body, we see that we have the LoST and HELD protocols. I have the location. I have the input and the output. In our case, this is CPU. This is the identify of the PSAP that is responsible for the location and that is serving for police or a specific area.

The other thing is the HELD regress, which is, yeah, also protocol in specification for location.

Configuration and for location conveyance.

Just closing my part, it's an incomplete list of references in the document. I think it's very important. There's the accessibility requirements 301 549 and the Human Factors 202 975.

And then TS 103 479. This is what we know as NG 112 in Europe and the specification in the U.S. that describes the same elements and the same interfaces.

And then you can imagine that there's a huge list of specifications.

We have the IETF RFC SIPs.

Then there's negotiating human language and real-time communications and the SDP session description protocol and then the caller language preferences, for instance.

Okay. That's the technical part.

I will just hand over to the host.

>> CRISTINA LUMBRERAS: Thank you, Wolfgang.

We'll go to the session of Q&A.

We have questions that have been shared with the speakers in the Q&A box.

Thank you, all of you, for asking all of these very interesting questions.

So I will start with a question, perhaps, about language and modality. We have some questions about this.

So we have this situation where a person from a country in the European Union travels to another country where, of course, the language will be not the same. So this is our first question. How can this be addressed?

I will merge it with a second question that is also about the same. There are requirements about automatic indication of language and modality preferences. Why are these requirements including an accessibility feature? Is it not problematic for a person using speech to explain which language is needed?

So I don't know who would like to answer this question?

Gunnar?

>> GUNNAR HELLSTRÖM: I can have a try. Yes, this is a problem in Europe. Starting with the general problem, of course, when we have a speaking person travelling and needing emergency support, they contact 112, and they will end up with no support by automatic means. They will end up in the local PSAP and have some problems to explain which language they want to use, and they will try to manage with the language that the call-talker will handle.

They will figure out that we need to transfer to some other -- maybe they find that they have an English group in the country and the person may also handle English which is relatively common but not so common in Europe that you can do it that way.

If you are a sign language user or text user, it takes so much longer to explain yourself.

Texting is slow. Sign language is rapid, but it's not understood by the regular call-taker. So, therefore, for the accessibility reasons, it is important to have rapid transfer of your preferences for languages. That is why we included here in the accessibility standards technical ways for the users to set in their device that I prefer to use Swedish Sign Language, and that will then follow with the incoming call to the call-taker. We have described a couple of different means to connect to a proper relay service for that case and also for the text case, it is good. If you have that set in your device, it will be transferred to the PSAP area, and you can have this automatic routing. So you can have groups in the PSAP who have been ready and able to handle languages that are more commonly in that region so that the calls take the route and be directly handled. You don't need to sit there and try to explain manually what language you prefer.

But this, of course, requires the user to take the problem to set it in the device. Maybe it's stored in the service. That is a technical factor.

We have also said that a practical thing for if the user has not set anything, usually you have a language set in your device. The user interface is in your favourite language. That will likely be usable.

So there are some means to transfer that, and we regard it to be an accessibility feature that we wanted to respond to, and it is very common that things you do for accessibility is also very useful for other purposes.

So we are happy to give away this feature for use by hearing people speaking different languages as well.

>> WOLFGANG KAMPICHLER: Actually, I would assume that if this is supported by the mobile devices, for instance, that everyone can change the settings and that the device would not filter out certain people and do not provide this to the PSAP. So I think this is some information that is provided in any case, and perhaps it helps. Currently, you have the same problem. Even if it's not a new specification, if I'm travelling abroad and calling emergency services, I usually get connected to the emergency services and I need to speak the local language.

With technology, the people already know that my preferred language is German, and they have some people that can help me or can route to a specific call-taker.

So I think it helps for everyone.

Yeah, I think it's something that should be available for everyone.

>> CRISTINA LUMBRERAS: Thank you. Let's go to the next question.

It's about total conversation. Is total conversation a separate service that only people with total conversation subscriptions can use?

>> GUNNAR HELLSTRÖM: Shall I take that also?

>> CRISTINA LUMBRERAS: You can, Gunnar, and Wolfgang can add something.

>> GUNNAR HELLSTRÖM: It shouldn't be a separate service, and with the Accessibility Act, it will not be a separate service. Or services providing voice will now be required to also provide real-time text. You know, that's transmitted while you're typing it so you don't need to wait for complete messages to be sent.

So that will, in fact, be required in all services where you have voice.

And then, if you add video, many services have video nowadays. So, automatically, they will -- you don't have any services only for video. You're always having voice also. So, automatically, they will be total conversation. And it's not anything specific with total conversation. It's just that they include these three media.

It is said in the Act that they shall have synchronization, but that's not a requirement. You have that requirement already on voice and video. You want to see it reasonably. The text requirement is not that stringent. You can accept that it takes a second before you're typing one character and the other end can read it.

So, yes, it is not special. It is just needing these three media.

>> WOLFGANG KAMPICHLER: Yep. Not much to add here.

Thanks, Gunnar, for that.

I think it's very important that everyone understands that total conversation is not the service number. It's audio, voice, real-time text. It just means if you have audio, video, and real-time text, then we call it total conversation.

I tried to explain this in my slide. Okay. We have these three media streams. If they are all three enabled and all three supported at both ends, then you have total conversation. And it's not an additional service. It's just, okay, something that happens if you have all of those three types in parallel.

>> CRISTINA LUMBRERAS: Thank you.

So we have here more technical questions. Let's say it like this, on the details.

How is information obtained in a network-dependent service. For example, like Microsoft Teams?

>> WOLFGANG KAMPICHLER: Yeah. That's a very good question. For this part, referencing to 3479, that's not something specific to emergency communication. It's an important part of communication in general. If you have a service like Microsoft Teams, I think the service provider would have to make sure that there's a location configured in the system that's being provided.

From my personal experience, if I'm using Teams with my laptop from the company and I'm travelling around, then Teams asks me to provide my location.

If I'm not in the office, you have to provide your location. If I'm doing so, that location can be used for emergency communication.

So we just focus on the conveyance part and not on the configuration part. But we currently have work where we discuss the interconnect, and there might be some clever ideas here how to deal with it. It's more something that needs to be considered by the service provider.

>> CRISTINA LUMBRERAS: Okay. Thank you.

I have here another question about the use of images. Is the use of images or pictures displayed in the text area or multimedia communication, is that displayed anywhere in the document?

>> GUNNAR HELLSTRÖM: No, we have not mentioned that.

>> WOLFGANG KAMPICHLER: I think there's no requirement for that, especially when it is about accessibility. Looking at the NG112 or NG911 specification, I think the protocol -- I think it's MSP which is used also in IMS as a protocol to replace the SMS or the (?) that we have, and this supports the transmission of media. If you have the ability to receive it on the PSAP side -- again, there's no requirement asking for this. So it's not part of this specification.

>> GUNNAR HELLSTRÖM: I can add.

>> CRISTINA LUMBRERAS: Yes, Gunnar.

>> GUNNAR HELLSTRÖM: I understand that the background may be from specific communication by means of series of pictures or pictograms -- I forgot of another way of sending coded messageses that used by some people with disabilities.

That one. (?) code, that would be possible to use because we are saying that the real-time text is using unicode, and you could set up a PSAP is able to handle Unicode. So it's slightly possible so our standards could support that, but it would be needed to really make it happen. For other symbolic languages, it can probably be sent in the video image.

So there are ways to handle it, but we have not mentioned it.

>> CRISTINA LUMBRERAS: Thank you, Gunnar.

We have a few questions about the Forest Guide. So I will try to summarise the questions.

They would like to know more about the routing part between countries, including roaming situations.

How can SIP calls be transferred to SI NETs over countries?

Also, culled you please explain the current (?) of the forest guide to include the domains?

>> WOLFGANG KAMPICHLER: I think that's my take. First question, how does it work? I think we need to difference it between roaming situations where we have mobile operators in place because that would not require this kind of interconnect because in roaming for emergency communication, it's something called "local breakout" that's in use. If I'm traveling from Austria to Germany, for instance, I am connected to the German infrastructure directly.

So that's done by the IMS. So there's no interconnect needed. It's in the case of VoIP, Voice over Internet Protocol providers, because I will connect to my service provider, as mentioned in the example.

For that, the Forest Guide is something that is not directly in the code flow. So it's just something to look up.

Usually, if I start an emergency communication, I provide a location and provide a need. So the service, SOS, for instance.

So that information is used in the infrastructure that receives, first, my request. If there is no mapping -- which means that for that location, there's no responsible PSAP provided by the mapping service in the domain, then this mapping service will ask the next level in the hierarchy, which is the Forest Guide, please tell me where do I get the service endpoints I can ask to get the mapping.

And each country can run it's own Forest Guide. What is the international mapping service that everyone can ask.

Think of a DNS service. You also have this kind of hierarchy. It pretty much works the same.

Basically, everyone can deploy the Forest Guide. Okay. What is the national mapping service that someone else remote can query to get the information, where to route the call to.

So that's looking up information that is then used in the routing infrastructure and that, for sure, means you need IP interconnections between the different national emergency service domains. So if this is not happening, it would be quite difficult to draw from one to the other. Connectivity is not rocket science. It's just something that needs to be configured and managed.

So that's the part for the Forest Guide.

And such things are available. Just looking into the U.S., there's California. They have four different ESI nets, or PSAP domains that, cover certain areas of California. In order to route from one to the other, they have the Forest Guide that services those four domains. The mapping service can request a Forest Guide if there's no mapping provided by the local mapping service.

I hope this answers the question.

>> CRISTINA LUMBRERAS: Thank you.

>> WOLFGANG KAMPICHLER: Perhaps just one thing because we did it in Europe. I almost forgot about that. We had the Celeste Project, Cristina. There's documentation in the report about the Celeste Project where we had deployments in Denmark, Italy, and Austria. We had this interconnect between those service domains, or PSAP domains, and we had a Forest Guide. I think if you want to read about this project and get further information about the Forest Guide, I think this is a nice reference.

>> CRISTINA LUMBRERAS: Thank you, Wolfgang.

I don't think we have more time for questions. Thank you, all, for answering all these questions and, also, of course to the participants.

>> NATHALIE GUINET: Yeah, thank you, all, to Chaitanya Javvaji, Gunnar Hellström, Wolfgang Kampichler, and Cristina Lumbreras.

Thank you to our translator interpreters and thank you to the captioner. This is an extraordinary webinar, not something we organise every day. I'm so happy we made it and had a good audience as well.

The next webinar we're organising in September are on very different groups. If you're interested, you need entries it the ETSI events part of our website.

This webinar has been recorded. We need to edit the video, but we will make the presentation available very quickly in PDF.

The recording will come at a later stage. So stay tuned.

I think we'll call it a day.

Thanks, everyone.

Thanks for listening. Have a nice end of the day.

Thank you. Bye-bye.

>> WOLFGANG KAMPICHLER: Thank you. Bye.

>> GUNNAR HELLSTRÖM: Thank you.

>> CRISTINA LUMBRERAS: Thank you. Bye.

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