

EXHIBIT A

(Declaration of VoApps, Incorporated—David A. King)

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF FLORIDA
ORLANDO DIVISION**

ANGELA GURZI,)	
)	
Plaintiff,)	
)	
vs.)	CIVIL ACTION
)	6:19-CV-823-ORL-31EJK
PENN CREDIT CORPORATION,)	
)	
Defendant.)	
)	

DECLARATION OF VOAPPS, INCORPORATED—DAVID A. KING

1. My name is David A. King. I am over eighteen years of age and have personal knowledge of the facts set forth in this Declaration.

2. In 1985, I graduated from Memphis State University, earning a bachelor’s degree in electronic engineering technology. Then, in 1997, I earned a master’s degree in business administration from Emory University.

3. I am the original founder of VoApps, Inc. (“VoApps”). I invented the adaptive signaling technology (“Adapt-Sig”) used by VoApps’ DirectDROP Voicemail (“DDVM”) technology. I left VoApps in 2015, but subsequently returned as an independent contractor.

4. I have been awarded two U.S. patents related to my Adapti-Sig technology, U.S. Patent numbers 8,976,676 and 9,325,596. I created the intellectual property underlying these patents while developing the DDVM technology.

5. Through education, training, and experience, I am familiar with the International Telecommunications Union (“ITU”), the internationally recognized standards body responsible for all telecommunications standards and protocols worldwide. Understanding the relevant ITU

standards was essential for me to be able to invent Adapt-Sig. I also am familiar with VoApps' DDVM technology and the U.S. telecommunications network as it pertains to calls, voicemail, text messages, and certain voicemail applications that may be installed on a cellular device. This familiarity was gleaned from my 33-year career in telecommunications, including over 15 years spent largely in the network operations departments of South Central Bell, Southern Bell, and BellSouth, where I completed the switched services network training curriculum and managed multiple telecommunications networks. At BellSouth, I first worked in the voicemail department beginning in 1995. In addition to working at these Bell Operating companies, I worked in both Competitive Local Exchange Carrier companies and other telecommunications-oriented service providers. I was also Vice President of Voice Networks & Data Operations for Texas-based Broadwing Communications, Inc., the 4th largest long distance telephone company by volume at the time. Since 1999, I have worked in six telecommunications related startups, four of them as company Founder, including VoApps. My current company, VoxAmi, LLC, is a voicemail service provider.

I. VOICEMAIL FUNDAMENTALS

6. A precursor to voicemail service was the answering machine. An answering machine is a device used for answering and recording a caller's message. Answering machines store the message content directly on the answering machine equipment and are physically connected to a residential or business landline.

7. All cellular voicemail, by contrast, relies on the use of a centralized computer system that allows cell phone users to retrieve voice messages. Specifically, unlike answering machines, voicemail service platforms rely on voicemail equipment that is centrally located in data centers or housed in telephone carrier central offices. These voicemail service platforms

consist of rack mounted, computerized servers that are connected to the telephone network and are assigned business class, landline telephone numbers.

8. One common thread across all voicemail services is the fact that voicemail messages are always delivered to this type of separate server rather than to the telephone device or cellphone handset. Voicemail messages must be delivered to a voicemail platform, which stores the message content locally on the voicemail service provider's platform unless and until the voicemail user retrieves and/or deletes those messages. Furthermore, while residential consumers typically own an answering machine they use, voicemail is provided as an ancillary service by a variety of cellular voicemail service providers. The consumer has no ownership interest in the voicemail service providers—rather the voicemail service such providers offer is owned and operated exclusively by that third-party service provider. While this third-party service provider often will be the consumer's wireless carrier, it does not have to be as there are a variety of companies who offer cellular voicemail services.

9. When a consumer leaves a cellular carrier's storefront with a new cell phone account and cellular service, he or she can immediately make and receive calls and Short Message Service ("SMS") text messages. This is because almost all United States cellular carriers offer SMS text messaging as an 'Opt-Out' service, meaning SMS is enabled automatically for a carrier's users, unless the user specifically opts-out and requests that their SMS text service be removed from their account.

10. In contrast, when that same consumer leaves the store with a new cell phone account and cellular service, the consumer cannot use cellular voicemail unless and until the consumer sets up and activates a voicemail account. This is because United States cellular

carriers offer voicemail on an ‘Opt-In’ basis. Voicemail is provided as an optional service that the consumer may opt to use, or they may choose not to use it at all.

11. There are two main ways that consumers can use voicemail on their cellular devices. Today, almost all consumers who elect to use voicemail decide to manage their voicemail by using a voicemail application, often referred to as an “app.” Should a consumer choose to use a voicemail service and app, he or she must do several things. First, the consumer must select and download a voicemail app. The consumer may choose to use a voicemail app preloaded by the consumer’s cellular carrier onto the consumer’s cellular device (*e.g.*, Verizon’s voicemail app or Sprint’s voicemail app). Alternatively, the consumer can download any of a variety of third-party voicemail apps—in fact, I created such a voicemail service and app in 2016 called YouVOXX that consumers can download and use. The specific app options and settings available to a consumer depend on his or her decision to use a particular voicemail service provider and the provider’s unique voicemail app. A consumer may use these options and settings according to his or her personal preferences. Many third-party voicemail service providers compete by offering a variety of features and functions. Some of these voicemail services are free while others are not. Some provide free voicemail services but charge for additional features and options.

12. Alternatively, if a consumer wishes to have voicemail service, but does not wish to use a voicemail app, the second way the consumer may access their voice mail and listen to voicemail messages is by dialing into their voicemail service provider’s direct access number. For the consumer’s convenience, this access number typically is stored in the consumer’s cellular device as a ‘speed dial’—a number dialed when the consumer long-presses the ‘1’ button on the keypad or a speed dial code such as ‘*86.’

13. However, regardless of whether a consumer decides to access and listen to their voicemail using an app or by manually ‘dialing in’ to listen to voicemail messages, the consumer must first perform a series of actions to ‘set up’ or activate his or her voicemail account with their selected voicemail service provider. As part of this voicemail setup process, a consumer typically establishes a password and records a personal voicemail greeting or selects a system-provided voicemail greeting. During the voicemail setup, a consumer also may set a variety of features according to his or her personal preferences—including whether or not the consumer wishes to receive new voicemail notification alerts on his or her cellular device. Importantly, should a consumer choose not to activate a voicemail account, no voicemail can be sent to or received by that consumer.

II. HOW DDVM WORKS

14. DDVM uses the Adapti-Sig technology I developed in 2009 and 2010. Adapti-Sig is a VoApps-managed, cloud-based platform that makes a connection directly to the voicemail service provider’s voicemail platform that serves a cellular user who has elected to use voicemail services offered by that provider. To understand how this technology works, we first need to outline some basics about the telephone network.

15. As depicted in Figure 1, the telephone network fundamentally consists of three parts:

a. The Radio Access Network (“RAN”) segment of the network contains the transmission equipment for the cellular network. The RAN includes the familiar cell towers and their radio transmission equipment,¹ as well as consumers’ actual cellular phones and mobile devices. The geographic area covered by this equipment is commonly referred to as a “cell.” The RAN consists of a collection of such cells.

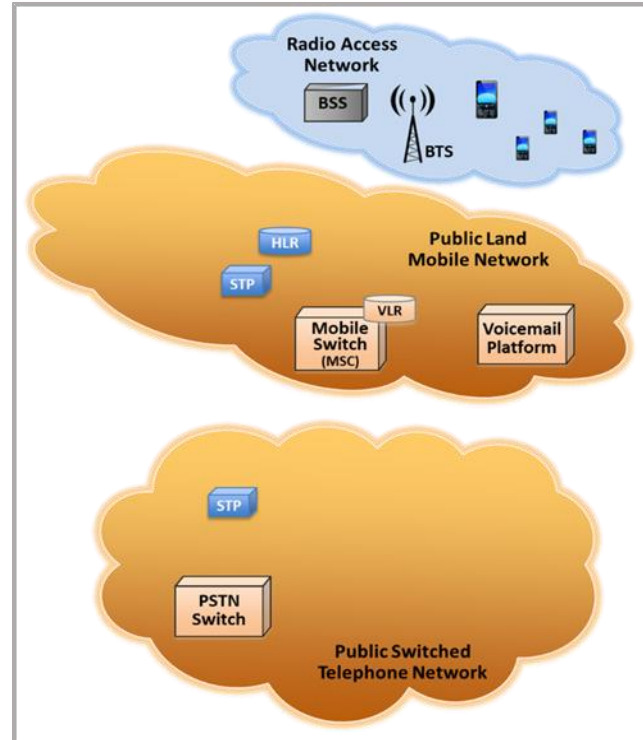


Figure 1. The Three Main Parts of a Telephone Network

b. The Public Land Mobile Network (“PLMN”) is the land-based segment of the cellular network² that provides switching and transport for the cellular network. The PLMN includes the equipment that is used to interconnect the many ‘cells’ in the cellular network. PLMN equipment typically is housed in a cellular carrier’s central office or data center.

¹ Newton, H. (2013). Newton’s Telecom Dictionary 27th Updated & Expanded Edition. New York: Flatiron Publishing, at 977.

² Noldus, R. (2006). CAMEL Intelligent Networks for the GSM, GPRS and UMTS Network. John Wiley & Sons, Inc., at 2.

c. The Public Switched Telephone Network (“PSTN”) is the segment of the telephone network that houses the traditional landline-based telephone network.³ PSTN equipment typically is housed in a carrier’s central office.

16. Of note in the PLMN ‘cloud’ is the element labeled ‘Mobile Switch.’ Every cell tower is connected to a Mobile Switch and typically a cluster of several ‘cells’ are served by a single Mobile Switch.

17. In addition, every cell phone subscriber has a record of the services and features that he or she can use. It is called the subscriber’s “Service Subscription Record” and it is stored in the telephone network on a Visitor Location Register (“VLR”), which is located within the Mobile Switch.

18. When a consumer carries his or her cellphone from one cell coverage area to a cell coverage area in another Mobile Switch’s territory, the network sends a copy of that subscriber’s Service Subscription Record to the new Mobile Switch, so the network can know what features the consumer can use while the consumer is located within that particular Mobile Switch’s cellular area. The VLR where the subscriber is currently located always stores the most recent version of the subscriber’s Service Subscription Record. The VLR allows the various Mobile Switches within the cellular network to know where cellular customers are located at any given time to, for instance, connect a call to that user’s phone.

19. The Service Subscription Record that is forwarded and housed in each Mobile Switch’s VLR as the cellular user moves from cell to cell contains, among other things, a piece of information called the Forward-To-Number or (“FTN”). The FTN is a telephone number that a voicemail service provider provides to a voicemail subscriber for use in connecting to that

³ Sauter, M. (2011). From GSM to LTE An Introduction to Mobile Networks and Mobile Broadband. John Wiley & Sons, Inc., at 11.

voicemail provider's platform. If the cellular subscriber subscribes to a voicemail service, the FTN always will be housed within in their Subscription Service Record. That FTN number is the business class, landline telephone number assigned to the voicemail platform of the voicemail service provider that the cellular user has chosen to utilize in order to receive voicemail services.

20. As detailed below, only the network components contained within the PLMN and the PSTN are implicated in Adapti-Sig's operation. The Adapti-Sig technology does not interact with any components of the RAN network—in other words, the part of the network that houses the radio equipment necessary to receive cellular calls and communications—including the cellphone itself. The RAN is depicted as the blue cloud in Figure 1 and includes radio transmission equipment and the user's cellular phone. All of Adapti-Sig's interaction with the telephone network and the associated messages occur within the two land-based components of the telephone network, the PLMN and the PSTN, which are depicted in gold in Figure 1.

21. Figure 2 expands on Figure 1 by adding the Adapti-Sig related components alongside the telephone network elements depicted in Figure 1. The computing servers used by the Adapti-Sig technology and depicted in Figure 2 consist of cloud-based, rack-mounted servers provided by a cloud service provider.⁴ In addition, pre-recorded voicemail messages are stored in the cloud and are referred to architecturally as the Media Cluster.

⁴ The current Adapti-Sig cloud service provider is Amazon Web Services ("AWS").

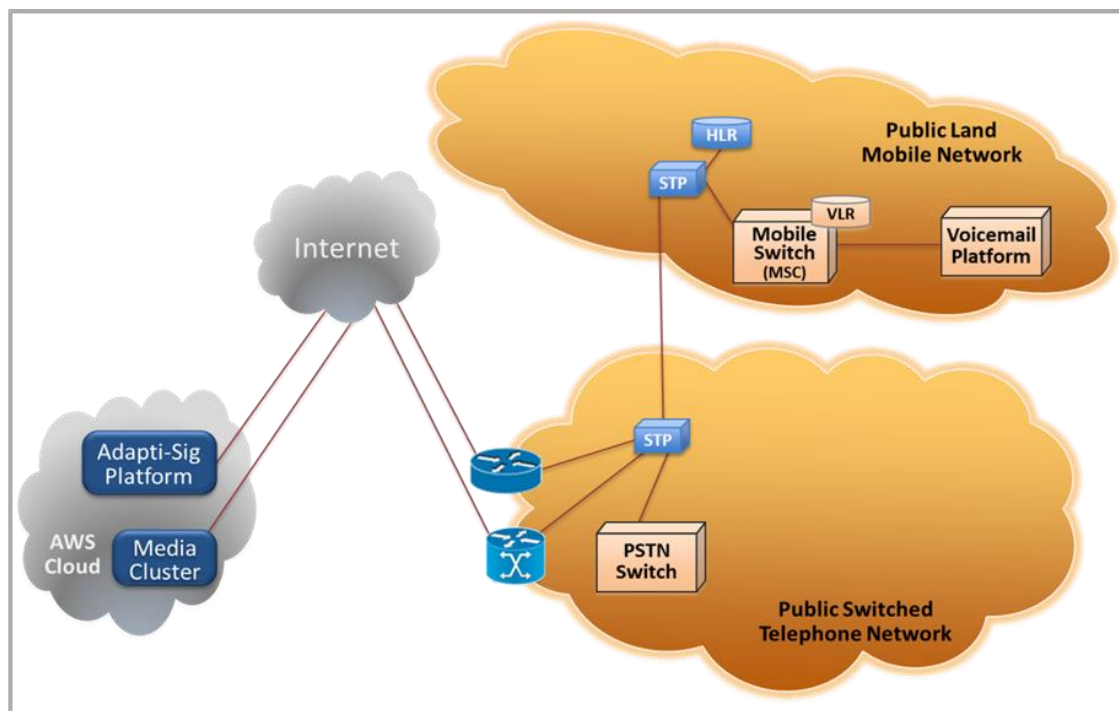


Figure 2. Adapti-Sig and the Telephone Network Architecture

22. Figure 2 also shows the signaling paths associated with Adapti-Sig and the various network elements of the PSTN and PLMN. These signaling paths are depicted in dark red. Signaling paths allow the various network elements and components to communicate and coordinate with each other,⁵ creating the ‘signaling network’ in which the Adapti-Sig technology operates.

23. Again, note that the RAN is not portrayed in Figure 2 because the Adapti-Sig technology used by DDVM does not use and is not involved with the RAN. Because the Adapti-Sig technology never touches or otherwise interacts with the RAN, it is incapable of making a voice connection with a cellular device. Stated differently, Adapti-Sig never makes a call to a cellular phone, as explained further below.

⁵ Noldus, R. (2006). CAMEL Intelligent Networks for the GSM, GPRS and UMTS Network. John Wiley & Sons, Inc., at 28–29.

24. When Adapti-Sig is ready to deliver a DDVM to a voicemail subscriber, DDVM’s Adapti-Sig technology sends network signaling events into the signaling network over the signaling links depicted in dark red in Figure 2 above. These signals locate the Mobile Switch that currently is serving the voicemail user. Then, these signals create a signaling scenario that causes the Mobile Switch to access the subscriber’s Service Subscription Record where the voicemail user’s associated FTN (*i.e.*, the business class, landline telephone number assigned to the voicemail service provider’s platform) is stored.

25. Figure 3 depicts the next step taken by the Mobile Switch. Once the Mobile Switch obtains the FTN, in accordance with ITU standards, the Mobile Switch (which is located in the PLMN land-based segment of the network) makes a connection from itself directly to the voicemail server platform that hosts the voicemail subscriber’s account. In other words, the ITU standards stipulate that the Mobile Switch must initiate a separate and distinct connection—originated by and from the Mobile Switch itself—and this connection is made to the voicemail

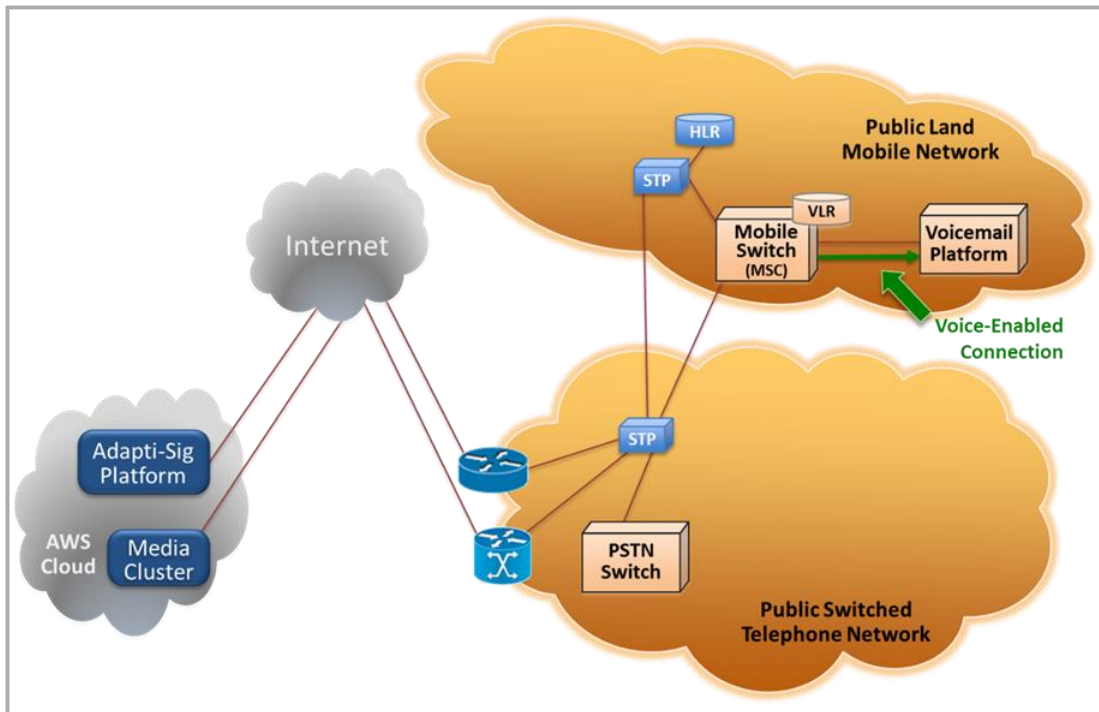


Figure 3. Mobile Switch Initiated Connection to the Voicemail Platform Telephone Number

server that has been assigned the FTN, *i.e.*, the telephone number assigned to the voicemail service provider’s voicemail platform as found in the Subscriber Service Record.⁶ In Figure 3, green arrows indicate this Mobile Switch-initiated connection between the Mobile Switch and the Voicemail Platform.

26. Once the voicemail service provider’s voicemail platform accepts the connection from the Mobile Switch, the Mobile Switch then sends a series of signaling messages to create a connection to the Adapti-Sig Media Cluster as depicted in Figure 4. Several signaling messages flow back and forth, but the net result is that the Mobile Switch joins or ‘conferences’ the connection it made to the Voicemail Platform Telephone Number to the connection it sets up to the Adapti-Sig Media Cluster. Once both connections are made and information is transferred, the system has established an end-to-end call, complete with an audio path between the Media

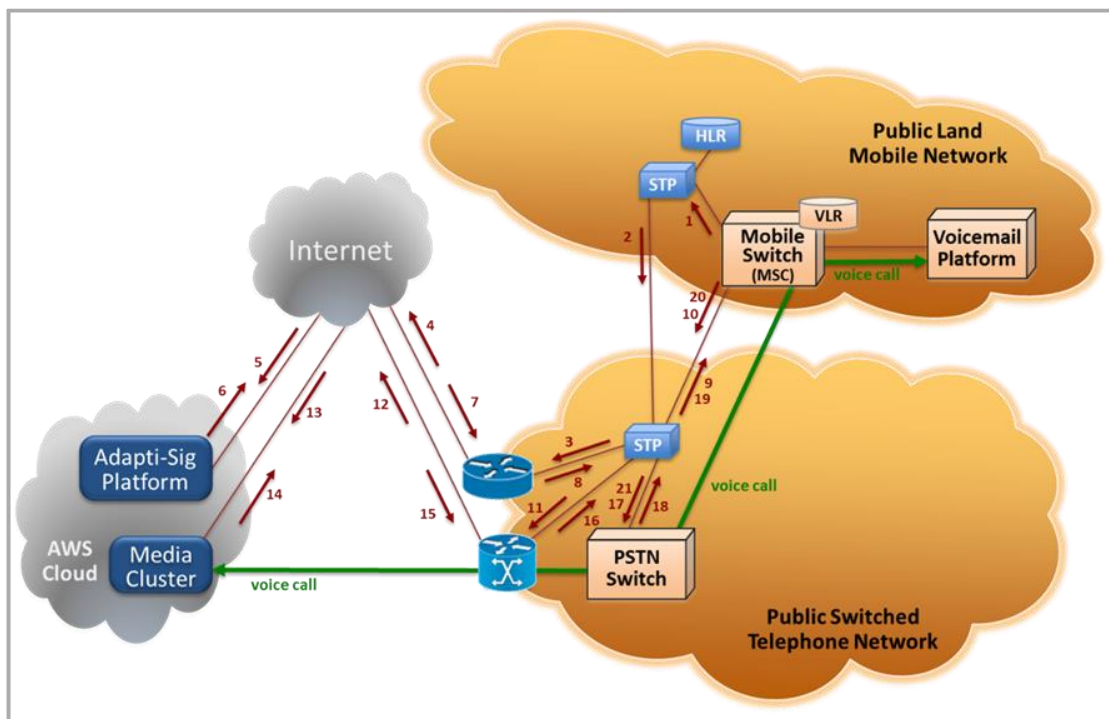


Figure 4. Signaling Flow to Connect the Voicemail Platform to the Media Cluster

⁶ *Id.* at 118.

Cluster and the Voicemail Platform. At this point, the voicemail message is played into the voicemail platform where it is subsequently stored in subscriber's designated voice mailbox.

27. For clarity, Figure 5 below removes the signaling flows and simply depicts the resulting voice call path as a green line. The result is an end-to-end connection between the VoApps Adapti-Sig Media cluster and the voicemail service provider's equipment. Once that connection is established, the Media Cluster plays the voicemail message into the voicemail platform. The Media Cluster plays an actual audio stream across the connection between itself and the Voicemail Platform.

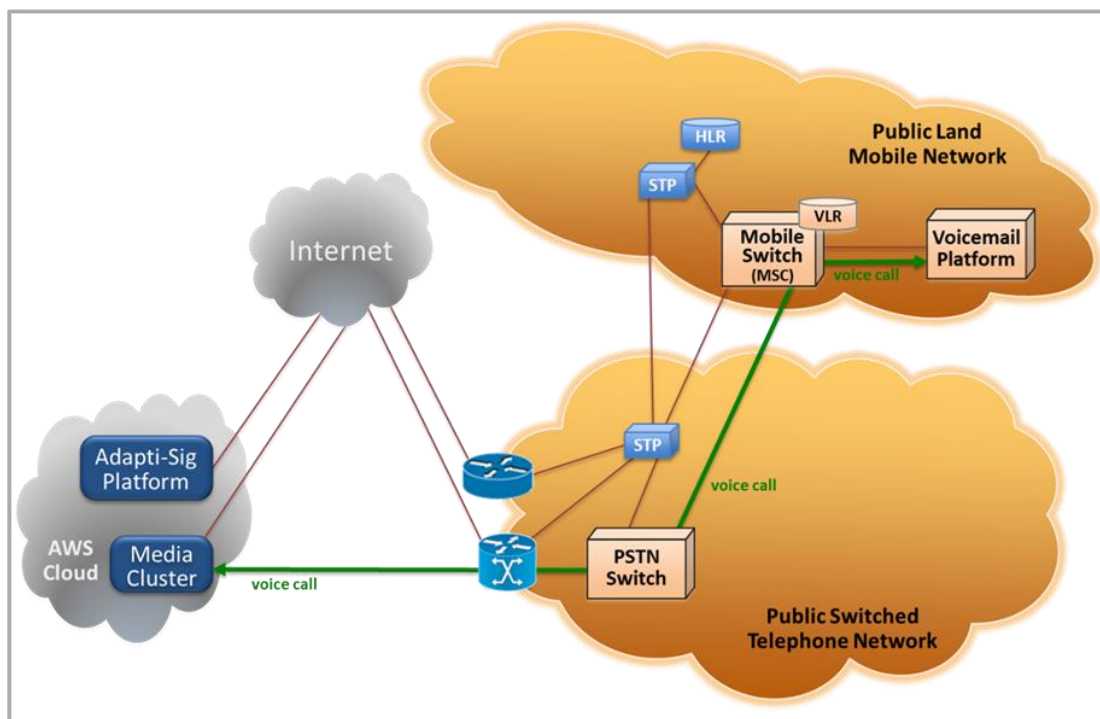


Figure 5. Adapti-Sig Platform to Voicemail Platform Call Path

When finished playing the message, the Media Cluster signals the network to disconnect the Voicemail Server connection and all other connections, thereby completing the required steps outlined as the definition of a call by ITU standards. At this point, the voicemail message

delivery is complete from Adapti-Sig's standpoint. There is no further action taken by Adapti-Sig regarding the delivery of that voicemail message—other than to report the results of the DDVM delivery back to VoApps' client.

28. The Adapti-Sig technology that delivers DDVM bypasses the traditional way of leaving voicemail messages for consumers. Instead of a call being made from Adapti-Sig to a cellular handset, the technology only makes a call between the Adapti-Sig servers and the servers comprising the voicemail service provider's voicemail platform, each of which are owned by business operators. This call is a landline-to-landline connection, a business-to-business connection that VoApps pays for at business class rates. Both ends of this connection terminate in physical servers located in a telephone company central office or in another third-party data center environment. These physical servers are not mobile; they are typically rack-mounted, and they are 'hard-wired' to the telephone network via copper or fiber-optic connections. Both the Adapti-Sig and the Voicemail Platforms are assigned landline telephone numbers. Again, the RAN is not used in the process at all, and no call is placed to the consumer's cellular phone number. Instead, the only call made is to the voicemail service provider's business class, landline number assigned to the voicemail platform. VoApps pays for this call between its Adapti-Sig server and the voicemail platform at business class rates. There is no charge to the consumer because no call was made to their cellular service or to their cellphone.

29. Thus, the Adapt-Sig technology initiates only a landline connection to a business class telephone number assigned to the consumer's selected voicemail service provider's voicemail platform—not to the telephone number assigned to the consumer's cellular telephone service. Once this connection is established, a voice path is directed to the connection, and the pre-recorded message is played into the voicemail platform by the Media Cluster. In other

words, the VoApps technology does not make any call within the meaning of ITU standards to the telephone number assigned to the consumer's cellular telephone service.

30. In summary:

a. For a consumer to hear any voicemail message, whether delivered through a traditional channel or via the DDVM delivery process, all of the following must occur: (1) the consumer must elect to receive voicemail services; (2) the consumer must select a voicemail service provider; (3) the consumer must activate his or her voicemail service account with a voicemail service provider; (4) the consumer must establish voicemail notification and display preferences; and (5) the consumer must log into his or her voicemail service provider's voicemail platform (either by app or by dialing) to retrieve the voicemail to listen to it.

b. DDVM does not access any part of the RAN portion of the mobile telephone network, which is required to connect to or communicate with a cell phone. Instead, using the patented Adapti-Sig technology, DDVM establishes only a landline connection between two business class numbers for which VoApps pays business class rates. Once that connection is established, the message is deposited into the voicemail service provider's platform for the consumer to retrieve and listen to at the consumer's convenience, should he or she elect to do so.

c. The DDVM delivery process does not initiate any call to the consumer's assigned cellular telephone number. Instead, DDVM uses the consumer's cellular number to locate the consumer's Service Subscription Record within the Mobile Switch currently servicing that mobile account. Once located, Mobile Switch actions retrieve the FTN (*i.e.*, the telephone number) assigned to the voicemail platform of the voicemail service provider that the cellular user has chosen, which the Mobile Switch then uses to establish a direct connection to the voicemail provider's platform. The Mobile Switch then creates a second connection to the

Adapti-Sig Media Cluster, joins the two connections in a single end-to-end connection, and the Media Cluster plays the voicemail message over that end-to-end connection, then releases the end-to-end connection, culminating in a landline-to-landline call.

III. CALL REQUIREMENTS UNDER GOVERNING INTERNATIONAL TELEPHONY STANDARDS AND PROTOCOLS

31. Since 1865, the ITU has coordinated the worldwide, international standards for telecommunications. All network elements in the U.S. telecommunication network adhere to and are certified to conform to ITU standards. This adherence and certification ensure the interoperability of each piece of telecommunications equipment across the globe.

32. ITU defined terms have specific, technical meanings within the telecommunications community, including the terms of art defined in the following paragraphs.

33. The ITU defines the term “call” as a generic term related to the establishment, use, and release of a “connection.”⁷

34. The ITU defines the term “connection” as an association of resources providing means for “communication” between two or more devices in, or attached to, a telecommunication network.⁸

35. The ITU defines the term “communication” to mean the transfer of information according to agreed conventions.⁹

36. Taking each of these defined terms together, the term “call” within the meaning of the telecommunications industry means the establishment, utilization, and release of a

⁷ *Terms and Definitions of Traffic Engineering*, ITU-CCITT (Fascicle II.3 – Rec. E.600), International Telecommunications Union, Geneva, Switzerland, 1988 at pg. 5,

⁸ *Id.* at 2.

⁹ *Id.*

connection, which provides a means of communication between two or more devices in, or attached to, a telecommunications network, for the purpose of transferring information.

37. Notably, a “call” by ITU standards cannot exist with only the establishment, or the utilization, or the release components of the connection—a call must include all three components.

38. Furthermore, the ITU standard ISDN User-Network Interface Layer 3 Specification for Basic Call Control, ITU-T (Rec. Q.931), International Telecommunications Union, Geneva, Switzerland, 1998 defines a minimum of eight specific conditions, or “states” that are necessary—indeed, indispensable—to establish a call. Until each of those eight individual steps is completed by the connection endpoints, no “call” has occurred within the definitional meaning of the ITU’s standards. It is only after all end points of the connection are in the ‘active’ state that a communication or transfer of information can take place, thereby establishing the requisite conditions for a “call.” Prior to achieving this final active state, no communication can occur on the connection between the endpoints, so there is no “call.” The eight call states the telephone network must traverse to establish a call include:¹⁰

1. null state (N0): No call exists. (This null state refers to the Call Originator side of the call)
2. call initiation (N1): This state exists for an outgoing call when the network has received a call establishment request but has not yet responded.
3. outgoing call proceeding (N3): This state exists for an outgoing call when the network has sent acknowledgement that the network has received all call information necessary to effect call establishment.
4. null state (N0): No call exists. (This null state refers to the Incoming Call side of the call)
5. call present (N6): This state exists for an incoming call when the network has sent a call establishment request but has not yet received a satisfactory response.

¹⁰ *ISDN User-Network Interface Layer 3 Specification for Basic Call Control*, ITU-T (Rec. Q.931), International Telecommunications Union, Geneva, Switzerland, 1998, pg. 3

6. call received (N7): This state exists for an incoming call when the network has received an indication that the user is alerting but has not yet received an answer.
7. connect request (N8): This state exists for an incoming call when the network has received an answer, but the network has not yet awarded the call.
8. active (N10): This state exists for an incoming call when the network has awarded the call to the called user. This state exists for an outgoing call when the network has indicated that the remote user has answered the call.

39. With the Adapti-Sig technology, the connection for which these internationally defined terms and events occur, and the only instance in which all the required states are completed, is across the connection established between the Adapti-Sig platform and the voicemail service provider's voicemail platform, as previously depicted in Figure 5 above. When using the Adapti-Sig platform and technology to deliver a DDVM, there is no connection made across the RAN to the cellular device. *See* Figures 1 and 2. In addition, the required ITU network states outlined in items 5 through 8 above are not initiated—much less completed—to the consumer's cellular device. Accordingly, Adapti-Sig DDVM delivery makes a call only to the telephone number assigned to the land-based voicemail service provider—not to a telephone number assigned to a cellular service.

IV. HOW SENDING A DDVM IS DIFFERENT THAN SENDING A TEXT

40. SMS text messaging is a commonly used communication service provided by cellular carriers. Unlike voicemail service, cellular carriers assign the same telephone number to a consumer's SMS text service as his or her cellular service. In addition, unlike voicemail, consumers do not have to initially setup or activate their SMS text service. Offered as an 'opt-out' service, SMS text is active as soon as the consumer's cellular network account is enabled—

which usually occurs even before the consumer leaves the carrier’s store with his or her new cell phone.

41. Like Figure 5, Figure 6 depicts the telephone network components used for the delivery of a DDVM message. However, Figure 6 also overlays the telephone network

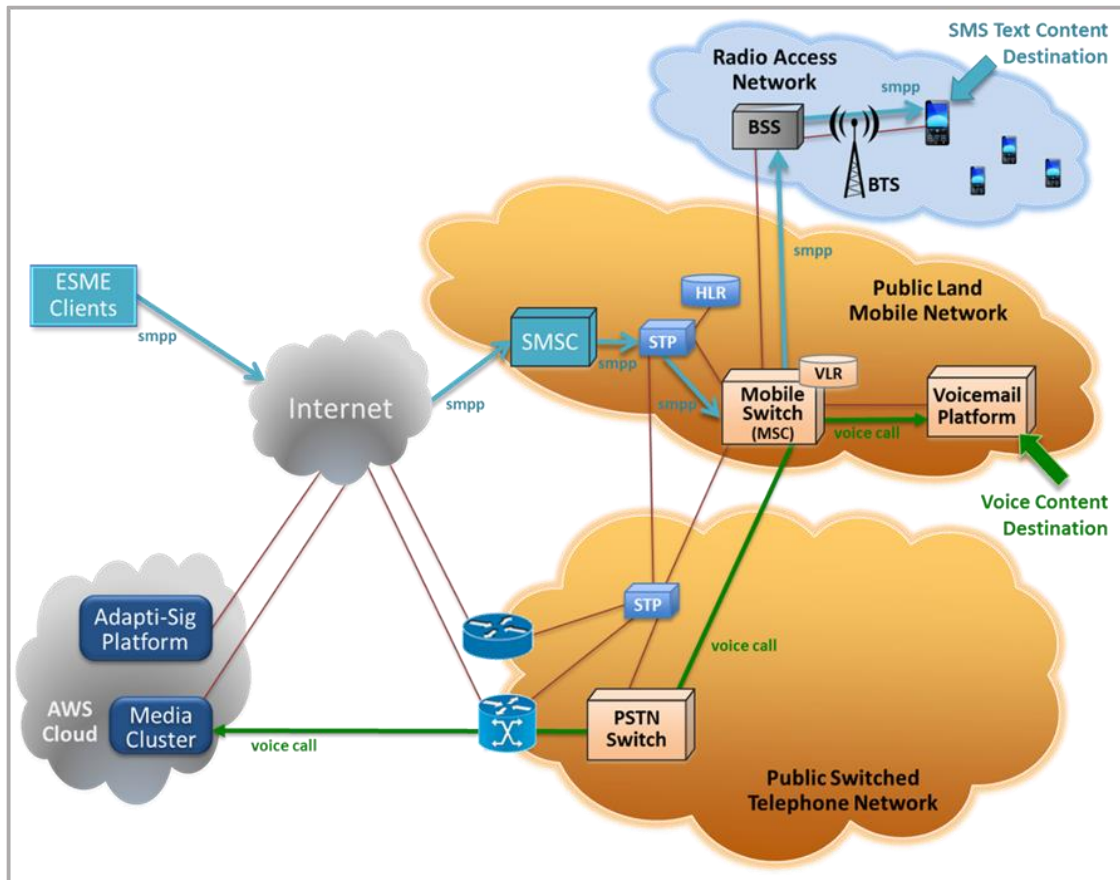


Figure 6. The Telephone Network Architecture of Voicemail Versus SMS Text

components used for the delivery of an SMS text message by a typical SMS aggregator (*i.e.*, SMS texts sent by a business rather than one sent by one mobile user to another mobile user) as seen in the teal colored network elements and transmission paths.

42. To deliver an SMS message, the sender prepares the text for the message using the External Short Message Entity Client (“EMSE”) and then sends the SMS message, typically via the internet, to a Short Message Service Center (“SMSC”), which is used to temporarily store

and then forward the message. The SMS message content is then forwarded to the Mobile Switch currently serving the subscriber. Next, the Mobile Switch tries to contact the subscriber's mobile device. If the device is powered on and connected to the RAN network, the SMS message content is automatically forwarded to the device where it is stored in the memory of the device. Once the mobile device has confirmed the proper reception of the SMS message, the Mobile Switch notifies the SMSC, and the SMS message is deleted from both the Mobile Switch and the SMSC's data storage.¹¹

43. If the subscriber device is not reachable—perhaps because the device's battery is dead, the network coverage has been temporarily lost, the device is switched off or is in airplane mode, or its memory is full—it is not possible to deliver the SMS message. In this case, the SMS message content remains stored in the SMSC temporarily. However, as soon as the subscriber's device reconnects to the network and communicates with the Mobile Switch, it notifies the SMSC to reattempt delivery of the SMS message. After the SMS message is delivered successfully to the subscriber's cellular device, the SMS message content is then deleted from both the Mobile Switch and the SMSC.¹² This process is why when one gets off of an airplane, all of the text messages that were sent while he or she was in the air appear at the same time when the phone is turned back on.

44. Accordingly, SMS text message services and the associated SMS text message delivery mechanisms are significantly different from that of a VoApps DDVM message. SMS uses several components of the telephone network that are not involved in the delivery of a

¹¹ Sauter, M. (2011). *From GSM to LTE An Introduction to Mobile Networks and Mobile Broadband*. John Wiley & Sons, Inc., at p. 20.

¹² *Id.* at 9; *see also* Noldus, R. (2006). *CAMEL Intelligent Networks for the GSM, GPRS and UMTS Network*. John Wiley & Sons, Inc., at 329 – 330.

DDVM message. One such difference is that, unlike DDVM messages, SMS text messages traverse the entire RAN, and the content of the message is delivered directly to the consumer's cellular phone where it is stored in the device's memory. The transmission destination for an SMS message is the memory of the subscriber's device where it is stored until deleted by the consumer. In stark contrast, DDVM message content is delivered directly to a voicemail platform. A DDVM message does not use or involve an EMSE or SMSC in the delivery process as an SMS message delivery does. Furthermore, neither the DDVM message delivery signaling messages nor the voicemail message content traverses the RAN. No voicemail message content is pushed to the consumer's cellular phone by DDVM. SMS text and voicemail services use different telephone network equipment, have different transmission paths through the network, and each has a different destination for the message content. Additionally, permanent storage of an SMS message in the network is not possible as it is with a voicemail message. A voicemail message is permanently stored on the voicemail platform until the platform is accessed and the voicemail is deleted by the voicemail subscriber. Finally, SMS text uses a different protocol called Simple Message Peer to Peer Protocol ("SMPP")—a completely different set of technical standards than that used by voicemail.

45. Further, from an ITU perspective, the connection made between the SMSC and the consumer's cellphone meets all the requisite ITU events and call states required for a call to be made. In the delivery of an SMS text message, a connection is established, used, and released between two or more devices in, or attached to a telecommunication network for the purpose of transferring information (*i.e.*, the text message content.) and both the SMSC and the consumer's cellphone achieve the 'active' call state. Thus, in the eyes of the telecommunications industry,

and per prescribed international ITU standards, the delivery of an SMS text message to a cellphone is a call.

V. HOW SENDING A DDVM IS DIFFERENT THAN LEAVING A VOICEMAIL WHEN THE CELLULAR PHONE IS TURNED OFF

46. In a traditionally delivered voicemail message, a conventional call attempt is made directly to the consumer's cell phone using his or her cellular phone number. This necessarily means that the caller is accessing the RAN portion of the cellular network to reach the consumer's cellphone on his or her assigned cellular telephone number (*see generally* Section II above). The phone typically rings or alerts the consumer of the incoming call as described in the call state: call received (N7) (see item 6 of paragraph 38). Then, if the user does not answer the call, or if he or she declines it, the call will "roll" to his or her voicemail service if he or she has elected to set up a voicemail service. Upon hearing a voicemail greeting, the caller may then choose to leave a message, or they may simply hang-up and terminate the phone call.

47. In a traditionally delivered voicemail message, if the consumer's handset is not reachable because the battery is dead, network coverage has been temporarily lost, or if the device is simply switched off or is in airplane mode, the conventional phone call that the caller attempted directly to the consumer's cell phone cannot be completed.

48. When this happens, upon learning of the unreachable status of the mobile handset, the Mobile Switch then goes back to the VLR and accesses the subscriber's Service Subscription Record where the voicemail user's associated FTN is stored. Once the Mobile Switch obtains the FTN (the telephone number of the voicemail platform), in accordance with ITU standards, the Mobile Switch then makes a separate connection from itself directly to the voicemail server platform that hosts the voicemail subscriber's account.

49. The crucial difference between a traditional voicemail delivery process when the device is powered off versus the delivery of a DDVM is *the event that triggers the Mobile Switch* to access the FTN of the subscriber and make a connection to his or her voicemail platform.

50. In a traditional voicemail delivery where the phone is turned off or is otherwise unreachable by the Mobile Switch, the triggering event is a conventional phone call that was attempted but could not be completed. Here, a regular phone call was attempted to the cellular device using the cellular telephone number. However, in the case of a DDVM message delivery, the triggering event that causes the Mobile Switch to access the FTN of the subscriber and make a connection to the voicemail platform is a set of signaling commands sent into the network by the Adapti-Sig technology via the signaling network depicted in Figure 2. There is no call attempted or made to the cellular phone in a DDVM message delivery. The Adapti-Sig network signaling commands do not crossover the PLMN boundary into the RAN. No signaling communication occurs between the Adapti-Sig platform and the cellular device. Instead, a landline call is made by the Mobile Switch between the Adapti-Sig platform and the subscriber's voicemail platform using the telephone number of the voicemail platform (the "FTN") in response to the signaling commands provided by the Adapti-Sig technology. This landline call, initiated by the carrier's Mobile Switch, is the only phone call made in the course of a DDVM message delivery. This landline call from the Adapti-Sig server to the voicemail service provider's voicemail platform is the only connection created that meets all of the mandatory ITU events and call states required for a call to be made.

VI. THE CONSUMER VOICEMAIL EXPERIENCE

51. Voicemail is an optional service. Should a consumer decide he or she wishes to have a voicemail service, the first few decisions are critical in establishing his or her ongoing

voicemail experience. In fact, the consumer's selection of a voicemail service provider and a particular voicemail app determine the voicemail experience and the effect that an incoming voicemail has on his or her daily routine.

52. In the United States, numerous voicemail service providers compete by offering a variety of both free and paid features and options. Some offer very large voice mailbox message capacity or even unlimited voicemail message storage for consumers interested in receiving and saving numerous messages.

53. For other consumers, the ability to control who can leave a voicemail message is important to their overall voicemail experience. Modern apps offer the ability to block messages from specific callers, from certain categories of callers or even the ability to block all messages from anyone not in a contact list—or the ability to block specific callers who they blacklist.

54. For still other consumers, the ability to set their alerts and notifications is an important factor. Modern voicemail apps often allow the user to customize alerts such as new voicemail notifications in the same way the consumer customizes alerts from other apps. Like other communications apps, such as Facebook Messenger, WhatsApp, Twitter, and others, consumers can turn off notifications such as new voicemail notifications. Alternatively, new voicemail message notifications can be set to provide an alerting tone or to be silent, silently flash the camera LED, pop up a notification screen, or place a message in the notification area of the device's screen. They can be set to turn on the icon badge (the little red circle) or badge alerts can be turned off. Today, even flip-phones, which may be incapable of running traditional voicemail apps, have many such settings that consumers can configure according to personal preferences. This is because even older flip-phones now largely run the Android operating system, which offers many of these configurable notification options.

55. The presentation of a voicemail message to the consumer is another part of the consumer experience that is based on consumer choice. For instance, iPhone users enjoy free, automatic voicemail transcriptions so the consumer can easily read voicemail messages. Furthermore, in addition to being able to block voicemail messages as described above, consumers can simply swipe away any voicemail they do not wish to read, listen to, or otherwise engage with—it is entirely within the consumer’s control.

56. In summary, the effect on consumers of receiving a voicemail message is almost entirely configurable according to personal preferences just as it is with nearly all other modern communications apps. Even the choice of blocking voicemails from specific callers or the decision not to use a voicemail service in favor of using another messaging service such as a Direct Messaging service depends on consumer’s preferences, device settings, and the selection of a voicemail service provider.

Pursuant to 28 U.S.C. § 1746, I declare under the penalty of perjury under the law of the United States of America that the foregoing is true and correct.

Executed this 25th day of November 2019 in Atlanta, Georgia.



David A. King