

Security Risks Implementing Commercial VRS in Prisons

5/27/2015

This document describes video relay services (VRS), the call types that are supported by the VRS system, and the security risks associated with implementing commercial VRS in prison environments.

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Executive Summary

Over the last forty years, Congress has enacted numerous laws specifically designed to ensure that disabled individuals have access to the communication services, programs, activities, public facilities and other resources available to the general population. Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. § 794, guarantees persons with disabilities equal access to any entity that receives federal financial assistance, either directly or indirectly. Moreover, Title II of the Americans with Disabilities Act (ADA), 42 U.S.C. § 12141 et seq., extends these same rights to inmates in all state and local facilities. The standards of accessibility are similar under these two laws to ensure equal communication access and functional equivalency are also provided to deaf inmates.

The special communication needs of deaf inmates often seems confusing and the available resources are also often unknown. As such, deaf individuals serving prison terms are denied access to the telephone network; however, deaf inmates have constitutional and statutory rights to equal access, even in correctional facilities. When communication services are available to other prisoners and the prison fails to provide the accommodations necessary to make them available to deaf prisoners, the prison becomes liable for not providing equal access. Therefore, many correctional systems now find themselves reevaluating the communication services that are available to deaf inmates. Historically, this was provided by an obsolete technology call TTY and has been replaced by a newer video-based technology that seamlessly relays calls between a deaf individual, a hearing person and an interpreter.

Implementing commercial video relay service (VRS) in prisons for deaf inmates meets the ADA requirement; however, it also introduces a significant security threat akin to provisioning a sanctioned video cellphone to inmates. The introduction of commercial VRS without a managed-access system has the potential for illegal activity, including gang control, taunting witnesses, planning escapes or arrangement of other serious crimes. Common security practices implemented by ICS vendors for hearing inmate telephone calls cannot be implemented by VRS providers, per FCC rules and regulations, and are further prohibited from recording VRS/videophone calls and or terminating or reporting any criminal activity that may be said by a deaf prisoner. Therefore, without a managed-access system, VRS calls cannot be recorded, monitored or blocked. Additionally, without a security system for commercial VRS in place, prisoners using commercial VRS are easily able to make prison-to-prison calls without the knowledge of prison administration.

Without knowing these consequential security risks, prison administrators are installing commercial VRS solutions to meet the court-mandated requirements for deaf inmates, but unfortunately, commercial VRS introduces an unsecure communication portal into their prison that is fraught with security risks. It is imperative for the safety of prison staff and reduction of inmate-generated criminal activity, that VRS is augmented with a secure, managed-access system.

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What is VRS?

Video Relay Service ("VRS") is an FCC regulated service¹ that enables persons who are deaf or hard of hearing ("HoH") with equal access to the public telephone network. The service is available for free to any qualifying deaf or HoH person using American Sign Language ("ASL"). The service requires a video terminal, a broadband Internet connection, and an account with a VRS provider. There are three major FCC-certified VRS providers -- They are Purple Communications, Sorenson Communications, and zVRS.

The VRS system enables a deaf person to communicate with a hearing telephone user via an American Sign Language interpreter. The interpreter is positioned in the communication path between the deaf person and the hearing person. On one side, the interpreter communicates with the deaf person using a video terminal. On the other side, the interpreter communicates with the hearing person via a telephone. The VRS interpreter repeats exactly what was said by each party. A typical VRS call is depicted in the following illustration.



When installed in prison environments, VRS enables a deaf prisoner to communicate with a hearing person. In addition to providing deaf prisoners with equal access to the telephone network, the VRS system enables deaf prisoners to communicate with other deaf people using their VRS video terminals.

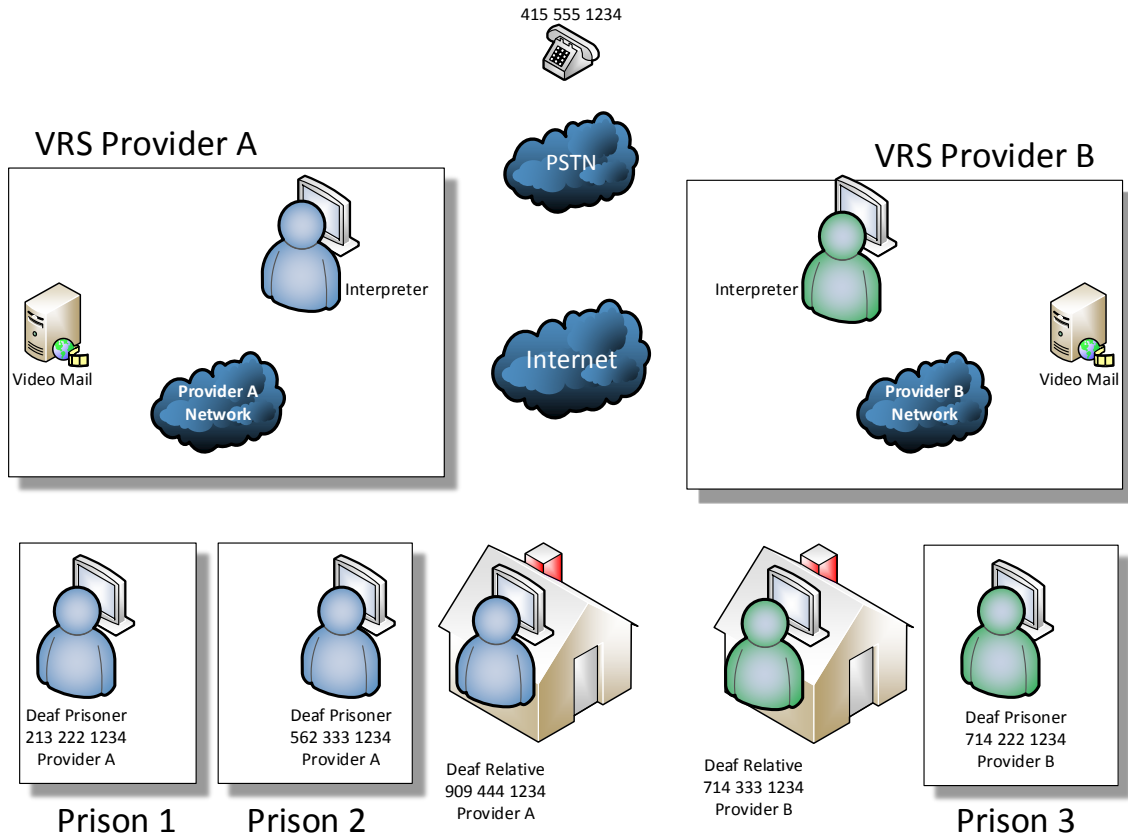
¹ An in depth description of VRS can be found at <http://www.fcc.gov/guides/video-relay-services>

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Autonomous Systems

All VRS providers operate their own systems independently, but are required by the FCC to interconnect with the other licensed VRS providers. VRS is based on 10-digit numbers and all VRS numbers must be assigned by a default VRS provider; similar in concept to how cell phone numbers are assigned by cellular providers.

The drawing below depicts a telephone connected to the public switched telephone network and two VRS providers. Each VRS provider has deaf people assigned to their VRS service. VRS Provider A has two deaf prisoners and a deaf individual. VRS Provider B has one deaf prisoner and a deaf individual. This drawing will be used throughout this document to explain the call scenarios supported by the VRS system and the security risks associated with installing commercial VRS in prison environments.

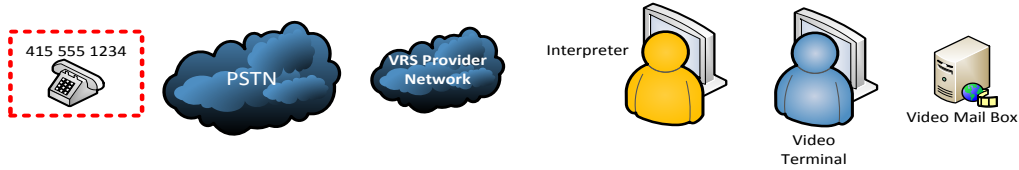


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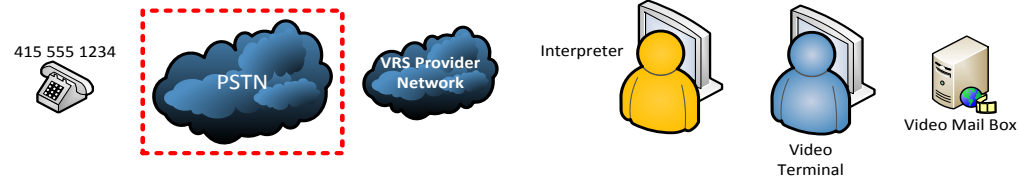
Components of VRS

All of the major licensed VRS providers support a system that consists of six discreet components. They are:

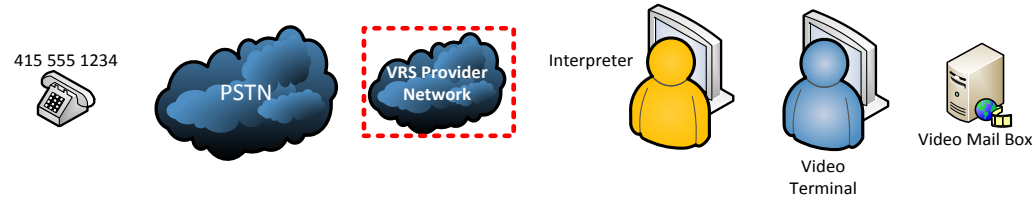
- 1) A telephone user with a 10-digit number



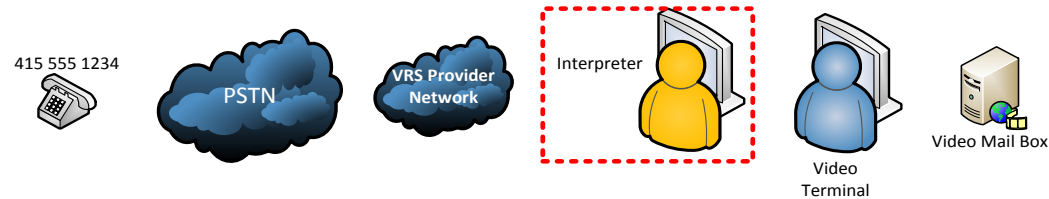
- 2) The Public Switched Telephone Network(PSTN)



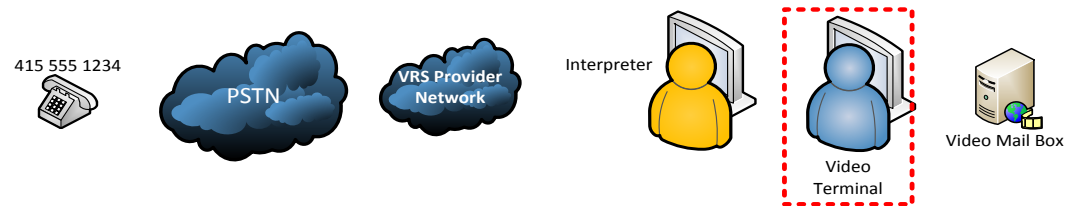
- 3) The VRS provider's core network



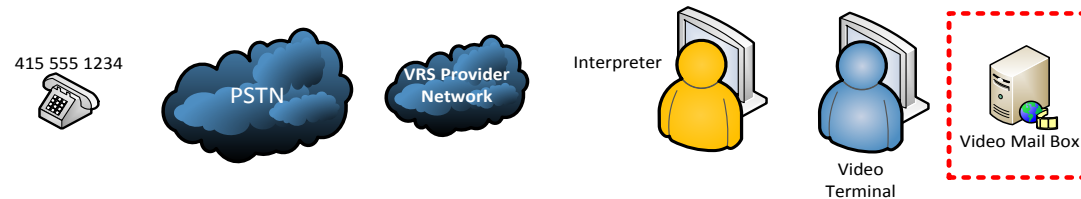
- 4) VRS interpreters on video terminals inside the VRS provider's network



- 5) Video terminals for deaf individuals with 10-digit numbers (connected to the Internet)



- 6) A video mail system for each 10-digit VRS number



Call Scenarios Supported by VRS Providers

There are 11 call scenarios that are supported by VRS providers and would be available to commercial VRS installations in prisons. The 11 scenarios are grouped into three major call types and scenarios, and are categorized as:

- 1) VRS Outbound
 - Deaf prisoner video calls to a telephone number
 - a. Scenario 1 - Deaf prisoner uses default provider to call a telephone number
 - b. Scenario 2 - Deaf prisoner uses dial around to call a telephone number
- 2) VRS Inbound
 - Telephone calls to a deaf prisoner
 - a. Scenario 3 - Telephone call to a deaf prisoner
 - b. Scenario 4 - Telephone call to a deaf prisoner's video mail
 - c. Scenario 5 - Telephone call dial around to a deaf prisoner
 - d. Scenario 6 - Telephone call dial around to a deaf prisoner's video mail
- 3) Person to Person
 - Deaf prisoner video calls to another deaf person
 - a. Scenario 7 - Deaf prisoner directly to and from another deaf person (on-net)
 - b. Scenario 8 - Deaf prisoner leave a video mail (on-net)
 - c. Scenario 9 - Deaf prisoner retrieve video mail (on-net)
 - d. Scenario 10 - Deaf prisoner directly to and from another deaf person (off-net)
 - e. Scenario 11 - Deaf prisoner leave a video mail (off-net)

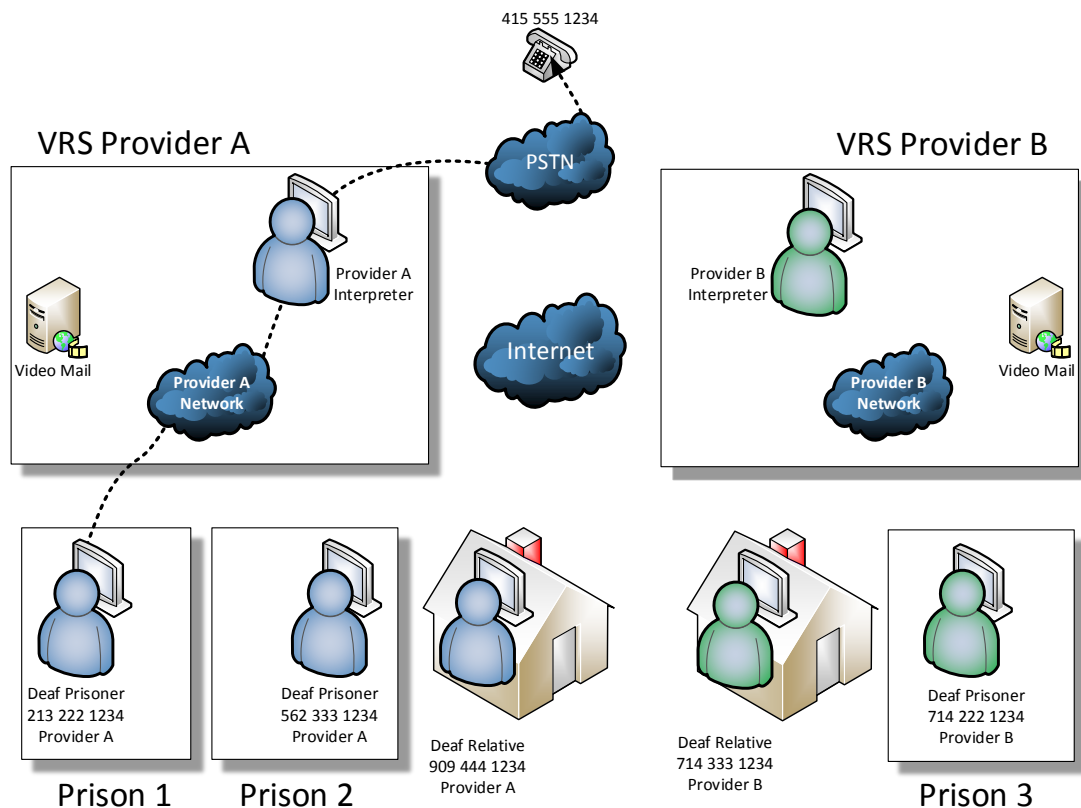
In the following sections, we will describe each call scenario in further detail and provide a security analysis of each scenario.

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VRS Outbound - Deaf prisoner video calls a telephone number

Scenario 1 - Deaf prisoner uses their default provider to call a telephone number

In this scenario, a deaf prisoner calls a telephone number using their default commercial VRS provider. After the call is finished with the hearing person, the interpreter will allow the deaf prisoner to make an unlimited number of additional calls.



Security Risks

1. No personally identifiable call history

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in using their own profile before making a video call. Therefore, all deaf prisoners share the same user ID.

2. There is no method to restrict outbound calls

VRS providers do not provide, maintain, or manage an approved call list. Therefore, it is possible for a deaf prisoner to call, without restriction, any telephone number or any deaf person including another deaf prisoner at the same or different prison.

3. There is no method to block the prisoner from making an unlimited number of telephone calls

After being connected to an interpreter, whether for an inbound or outbound call, the deaf prisoner is able to instruct the interpreter to make an unlimited number of additional calls to any telephone number.

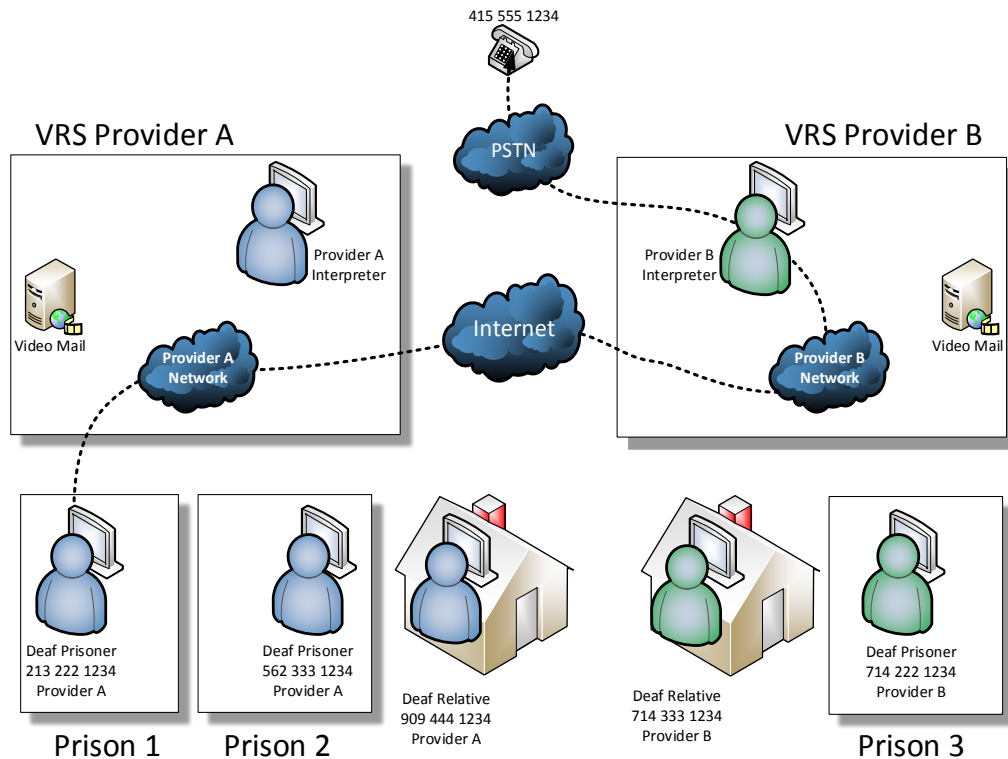
4. VRS providers are not allowed to record calls

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

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Scenario 2 - Deaf prisoner uses dial-around to call a telephone number

In this scenario, a deaf prisoner calls a telephone number using the "dial around" number of another commercial VRS provider. Typically, this is an "800" number that is registered to another commercial VRS provider in both the VRS and PSTN systems. After the prisoner is finished speaking to the hearing person, the interpreter will allow the deaf prisoner to make an unlimited number of additional calls.



Security Risks

1. No personally identifiable call history

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. There is no method to restrict outbound calls

VRS providers do not provide, maintain, or manage an approved call list. Therefore, it is possible for a deaf prisoner to call, without restriction, any telephone number or any deaf person including another deaf prisoner at the same or different prison.

3. There is no method to block the prisoner from making an unlimited number of telephone calls

After being connected to an interpreter, whether for an inbound or outbound call, the deaf prisoner is able to instruct the interpreter to make an unlimited number of additional calls to any telephone number.

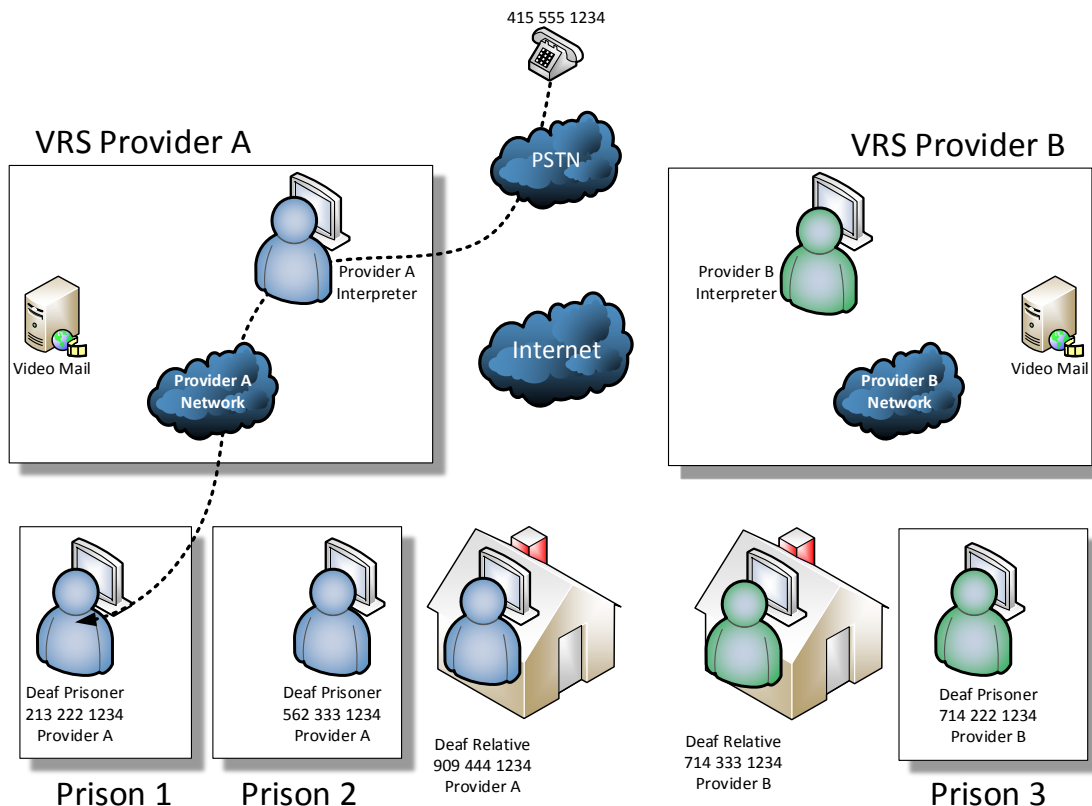
4. VRS providers are not allowed to record calls

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and /or review calls made or received by deaf prisoners.

VRS Inbound - Telephone call to a deaf prisoner

Scenario 3 - Telephone call to a deaf prisoner

In this scenario, a hearing person calls the deaf prisoner's 10-digit number, which is assigned to VRS Provider A. The call is answered by the interpreter and automatically connected to the deaf prisoner.



Security Risks

1. **No personally identifiable call history**

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. **There is no method to restrict inbound telephone calls**

VRS providers do not block inbound calls.

3. **There is no method to block the prisoner from making an unlimited number of telephone calls**

After being connected to an interpreter, whether for an inbound or outbound call, the deaf prisoner is able to instruct the interpreter to make an unlimited number of additional calls to any telephone number.

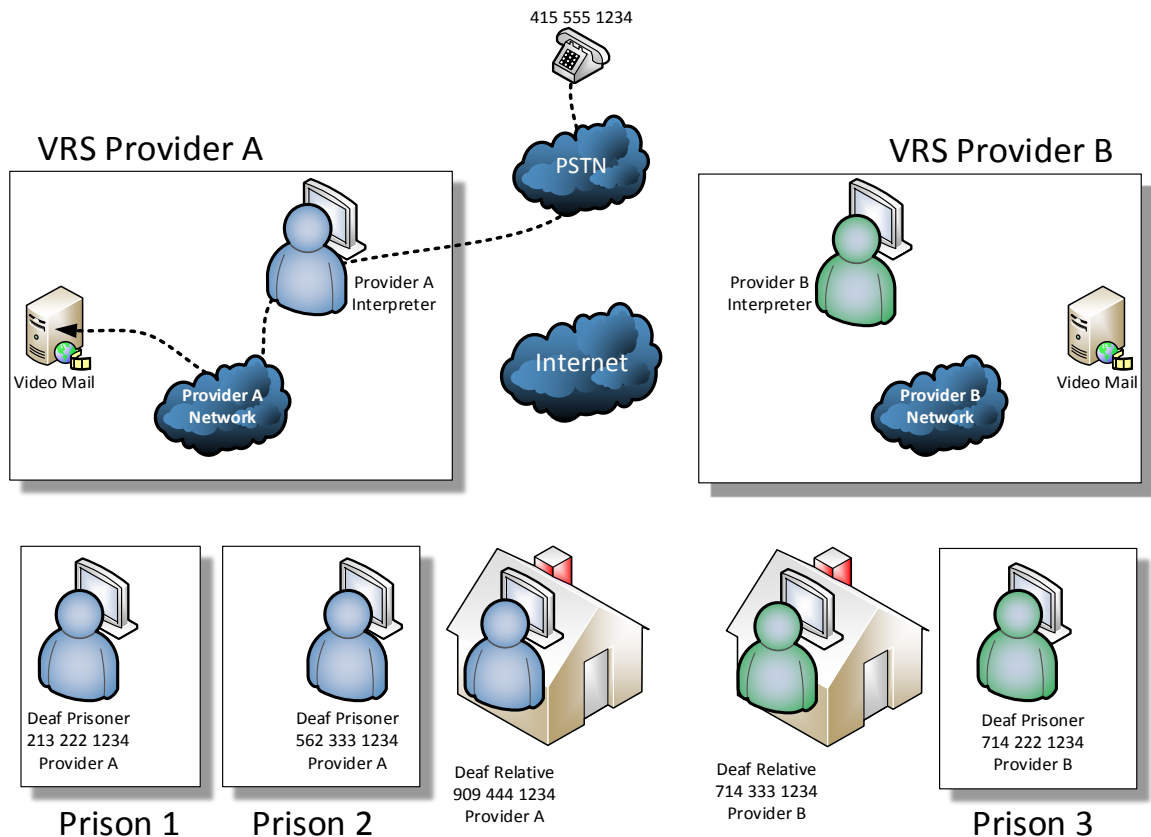
4. **VRS providers are not allowed to record calls**

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

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Scenario 4 - Telephone call to a deaf prisoner's video mail

In this scenario, a hearing person calls the deaf prisoner's 10-digit number, which is assigned to VRS Provider A; the call is answered by the interpreter and automatically connected to video mail when the deaf prisoner doesn't answer.



Security Risks

1. **No personally identifiable call history**

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. **There is no method to restrict inbound telephone calls**

VRS providers do not block inbound calls.

3. **There is no method to restrict peer to peer video calls**

VRS providers will deliver all calls directly to the prisoner's video terminal

4. **VRS providers are not allowed to record calls**

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

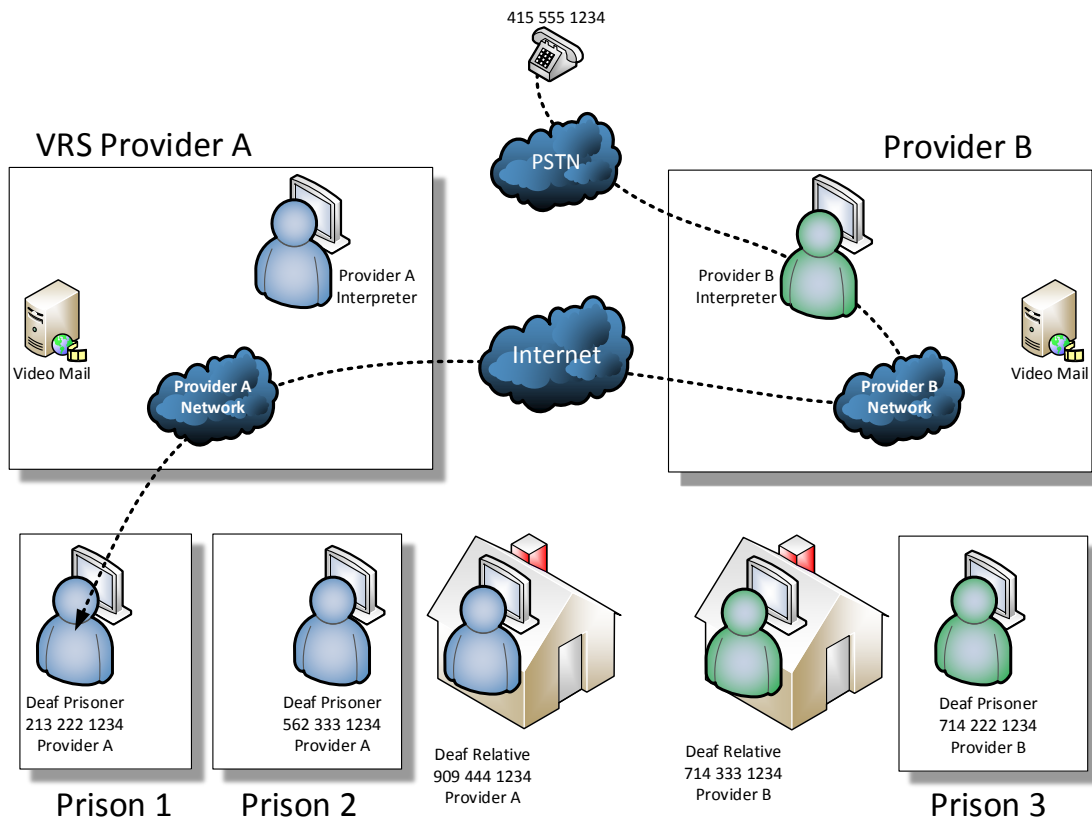
5. **There is no method to block the source of video messages**

A video message can be left for the prisoner from any telephone or other VRS video terminal including other prisoners.

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Scenario 5 - Telephone call dial-around to a deaf prisoner

In this scenario, a hearing person calls a toll-free number that is assigned to VRS Provider B, the call is answered by the interpreter, and the call is connected to the deaf prisoner at VRS Provider A.



Security Risks

1. **No personally identifiable call history**

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. **There is no method to restrict inbound telephone calls from alternative VRS providers**

VRS providers do not block inbound calls. Even if the default VRS provider did (which they don't), a telephone caller would be able to dial around the default provider and be connected to the prisoner's video terminal.

3. **There is no method to block the prisoner from making an unlimited number of telephone calls**

After being connected to an interpreter, whether for an inbound or outbound call, the deaf prisoner is able to instruct the interpreter to make an unlimited number of additional calls to any telephone number.

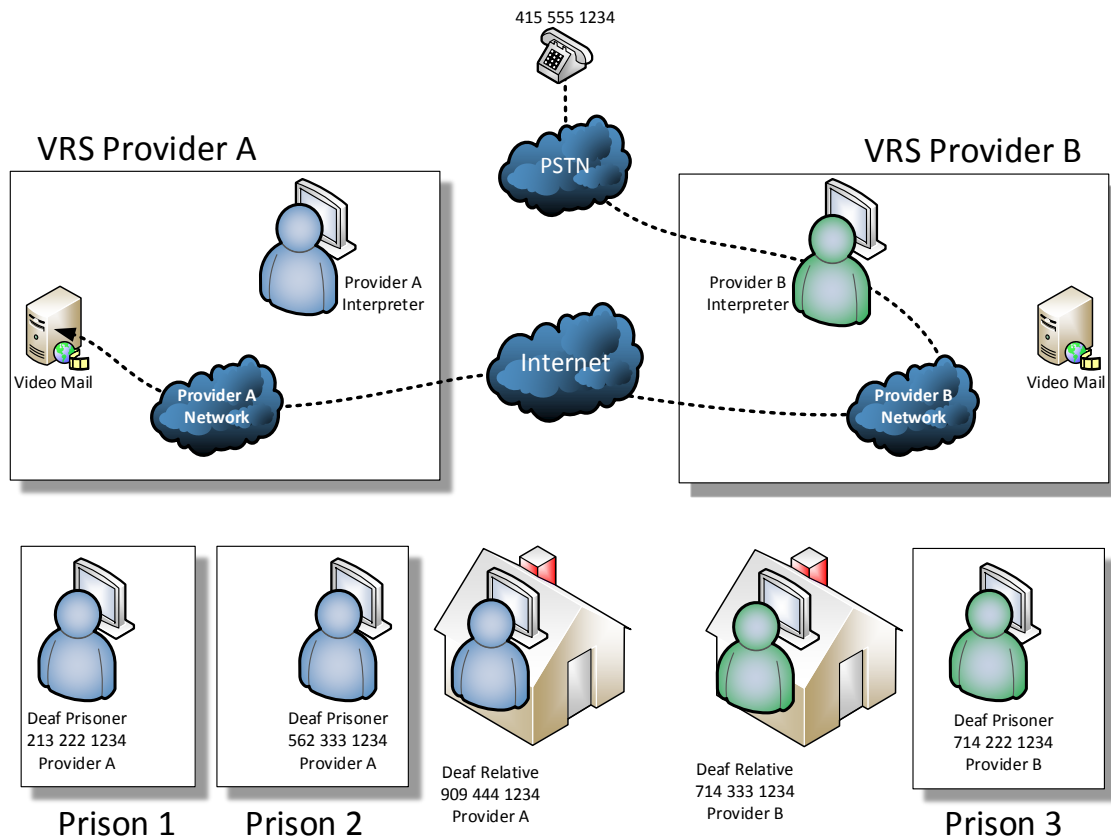
4. **VRS providers are not allowed to record calls**

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

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Scenario 6 - Telephone call dial around to a deaf prisoner's video mail

In this scenario, a hearing person calls an 800 number that is assigned to VRS Provider B, the call is answered by the interpreter, the caller has to instruct the interpreter what number to dial, but the deaf prisoner doesn't answer so the call goes to video mail.



Security Risks

1. **No personally identifiable call history**

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. **There is no method to restrict inbound telephone calls from alternative VRS providers**

VRS providers do not block inbound calls. Even if the default VRS provider did (which they don't), a telephone caller would be able to dial around the default provider and be connected to the prisoner's video terminal.

3. **There is no method to block the prisoner from making an unlimited number of telephone calls**

After being connected to an interpreter, whether for an inbound or outbound call, the deaf prisoner is able to instruct the interpreter to make an unlimited number of additional calls to any telephone number.

4. **VRS providers are not allowed to record calls**

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

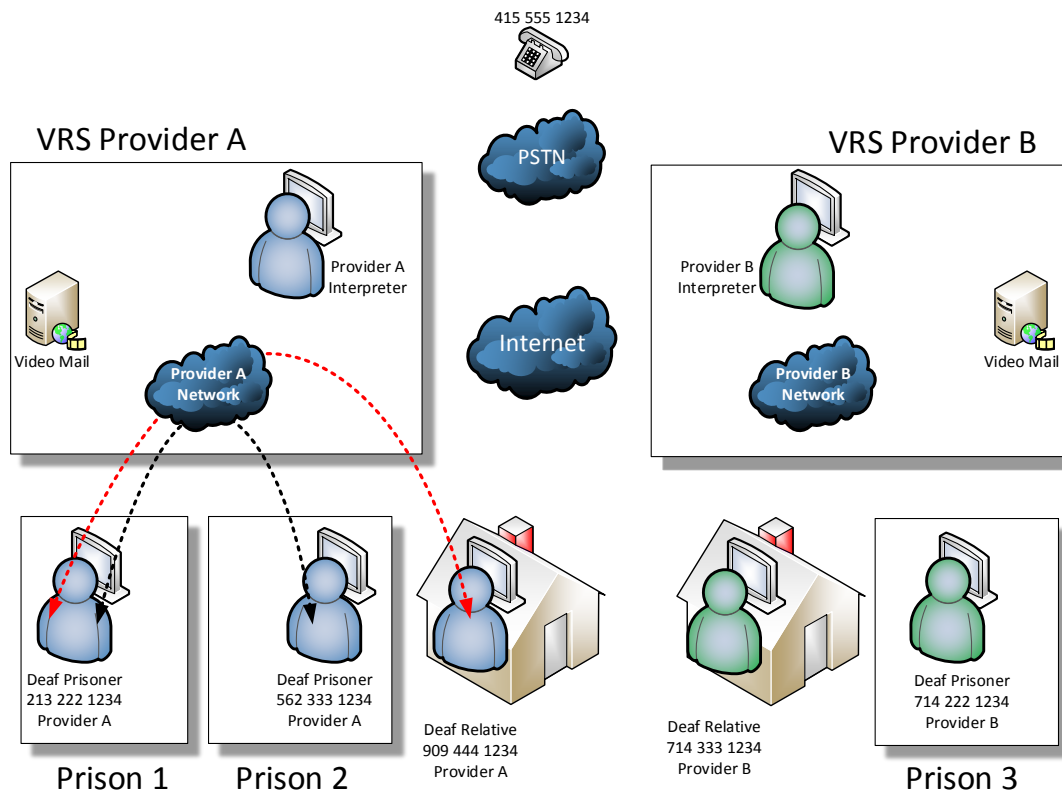
5. **There is no method to block the source of video messages**

A video message can be left for the prisoner from any telephone or other VRS video terminal including other prisoners.

Person to Person - Deaf prisoner video call to another deaf person

Scenario 7 - Deaf prisoner directly to and from another deaf person (on-net)

In this scenario, a deaf prisoner makes a video call to, or receives a video call from, another deaf person that is inside or outside the prison. This could be a relative or another deaf prisoner.



Security Risks

1. No personally identifiable call history

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. There is no method to restrict outbound calls

VRS providers do not provide, maintain, or manage an approved call list. Therefore, it is possible for a deaf prisoner to call, without restriction, any telephone number or any deaf person including another deaf prisoner at the same or different prison.

3. There is no method to restrict peer to peer video calls

VRS providers will deliver all calls directly to the prisoner's video terminal.

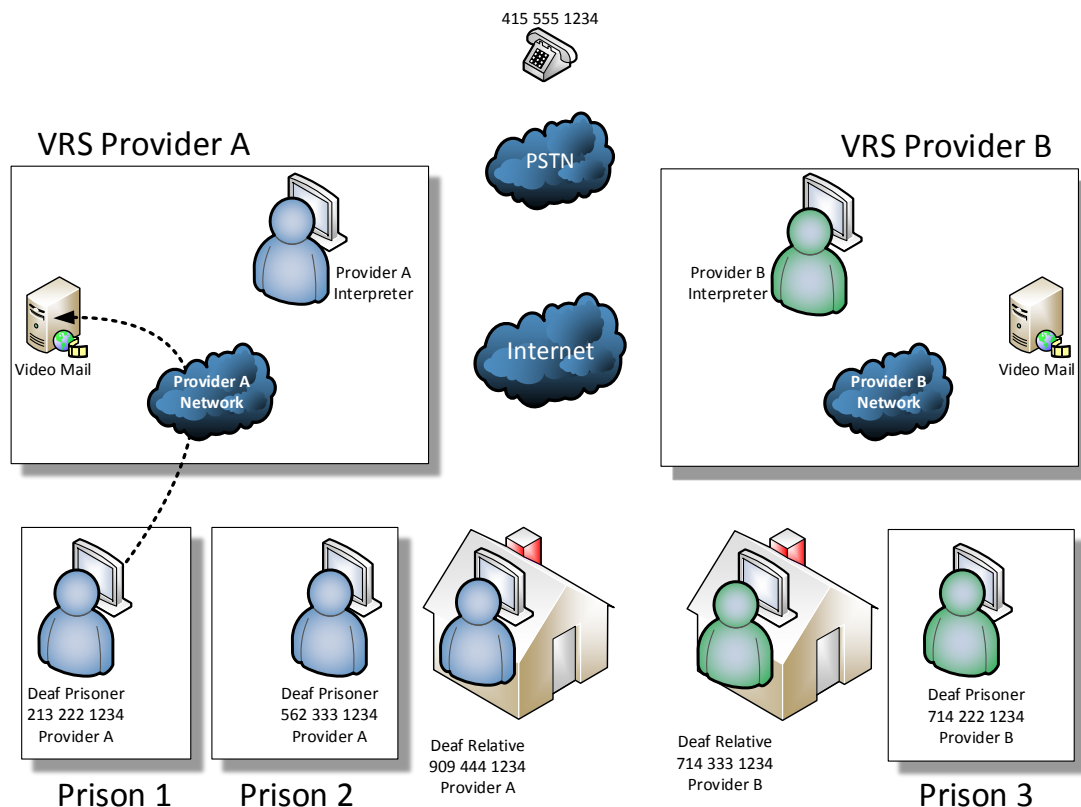
4. VRS providers are not allowed to record calls

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

Security Risks Implementing Commercial VRS in Prisons

Scenario 8 - Deaf prisoner leave a video mail (on-net)

In this scenario, a deaf prisoner calls another "on-net" deaf person. The caller is automatically connected to video mail when the deaf person doesn't answer.



Security Risks

1. **No personally identifiable call history**

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. **There is no method to restrict outbound calls**

VRS providers do not provide, maintain, or manage an approved call list. Therefore, it is possible for a deaf prisoner to call, without restriction, any telephone number or any deaf person including another deaf prisoner at the same or different prison.

3. **There is no method to restrict peer-to-peer video calls**

VRS providers will deliver all calls directly to the prisoner's video terminal.

4. **VRS providers are not allowed to record calls**

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

5. **There is no method to block the source of video messages**

A video message can be left for the prisoner from any telephone or other VRS video terminal including other prisoners.

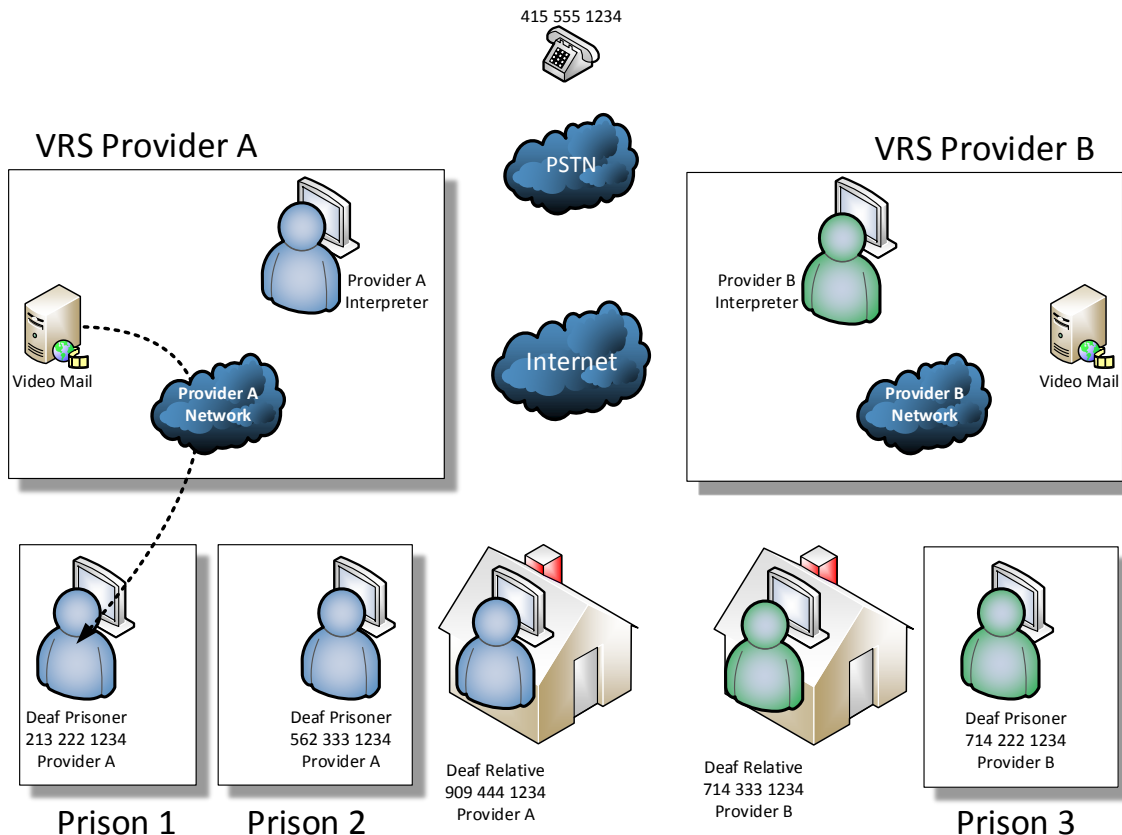
6. **There is no method to block the destination for video messages**

Because there are no outbound call restrictions, a deaf prisoner can leave a video message for another deaf prisoner.

Security Risks Implementing Commercial VRS in Prisons

Scenario 9 - Deaf prisoner retrieve video mail (on-net)

In this scenario, a deaf prisoner calls to retrieve their video mail.



Security Risks

1. No personally identifiable call history

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. There is no method to restrict outbound calls

VRS providers do not provide, maintain, or manage an approved call list. Therefore, it is possible for a deaf prisoner to call, without restriction, any telephone number or any deaf person including another deaf prisoner at the same or different prison.

3. VRS providers are not allowed to record calls

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

4. There is no method to block the source of video messages

A video message can be left for the prisoner from any telephone or other VRS video terminal including other prisoners.

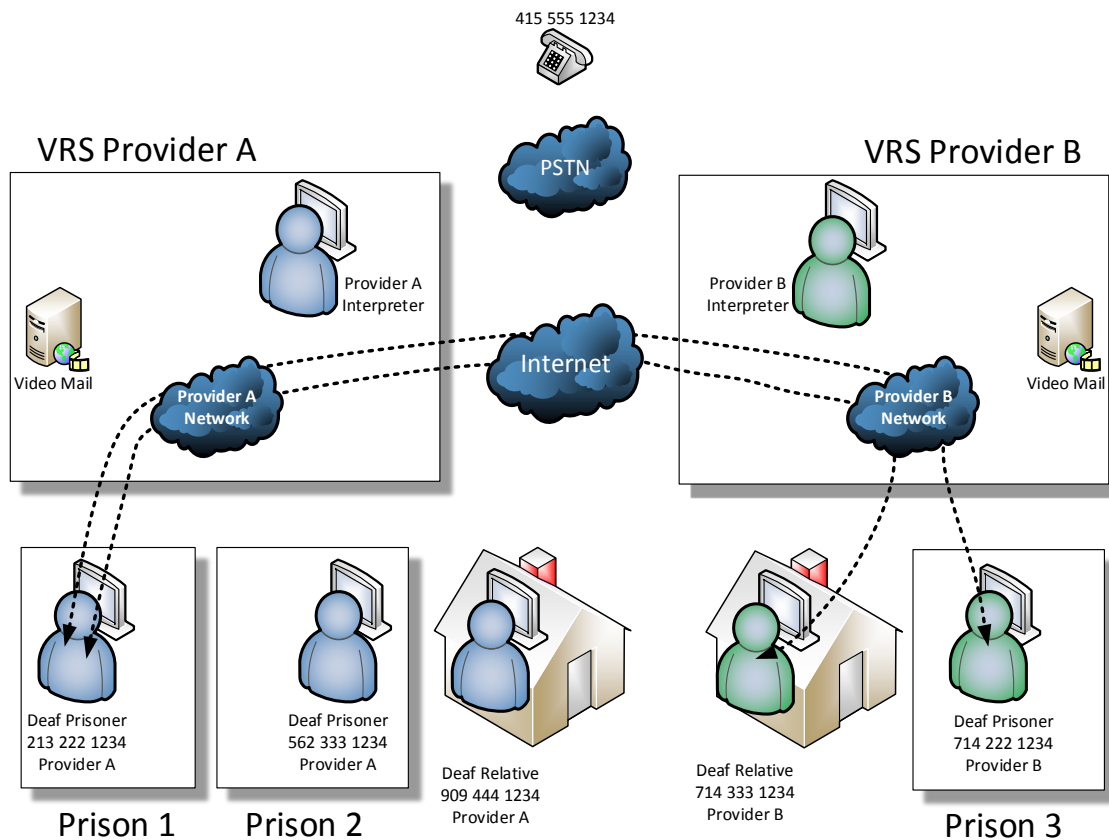
5. There is no method to block the destination for video messages

Because there are no outbound call restrictions, a deaf prisoner can leave a video message for another deaf prisoner.

Security Risks Implementing Commercial VRS in Prisons

Scenario 10 - Deaf prisoner directly to and from another deaf person (off-net)

In this scenario, a deaf prisoner calls a deaf prisoner at another prison that is located on a different VRS provider's network.



Security Risks

1. No personally identifiable call history

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. There is no method to restrict outbound calls

VRS providers do not provide, maintain, or manage an approved call list. Therefore, it is possible for a deaf prisoner to call, without restriction, any telephone number or any deaf person including another deaf prisoner at the same or different prison.

3. There is no method to restrict peer-to-peer video calls

VRS providers will deliver all calls directly to the prisoner's video terminal

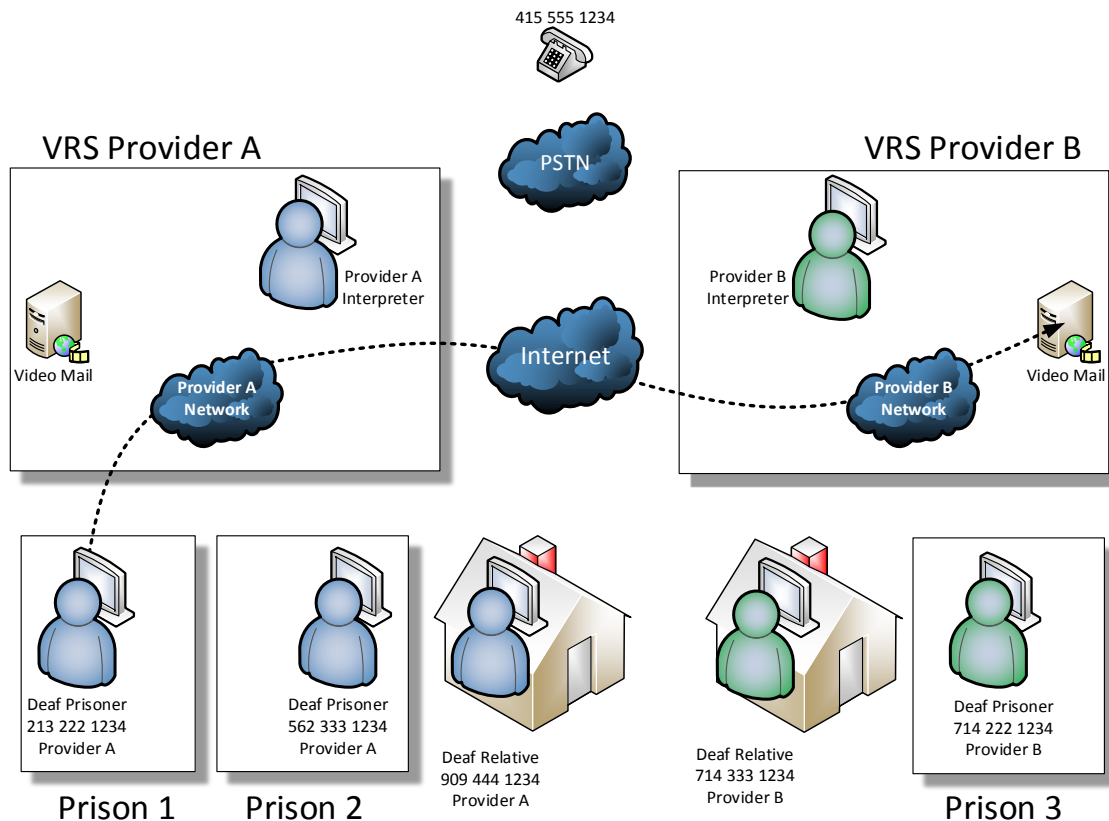
4. VRS providers are not allowed to record calls

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

Security Risks Implementing Commercial VRS in Prisons

Scenario 11 - Deaf prisoner leave a video mail (off-net)

In this scenario, a deaf prisoner calls a deaf person that is on a different VRS provider's network. The caller is automatically connected to video mail when the deaf person doesn't answer.



Security Risks

1. **No personally identifiable call history**

VRS providers often provide video terminals that DO NOT require deaf prisoners to sign in to their own profile before making video calls. Therefore, all deaf prisoners share the same user ID.

2. **There is no method to restrict outbound calls**

VRS providers do not provide, maintain, or manage an approved call list. Therefore, it is possible for a deaf prisoner to call, without restriction, any telephone number or any deaf person including another deaf prisoner at the same or different prison.

3. **There is no method to restrict peer to peer video calls**

VRS providers will deliver all calls directly to the prisoner's video terminal.

4. **VRS providers are not allowed to record calls**

Because VRS providers cannot record the audio or video portion of calls, there is no method to record and/or review calls made or received by deaf prisoners.

5. **There is no method to block the source of video messages**

A video message can be left for the prisoner from any telephone or other VRS video terminal including other prisoners.

6. **There is no method to block the destination for video messages**

Because there are no outbound call restrictions, a deaf prisoner can leave a video message for another deaf prisoner.

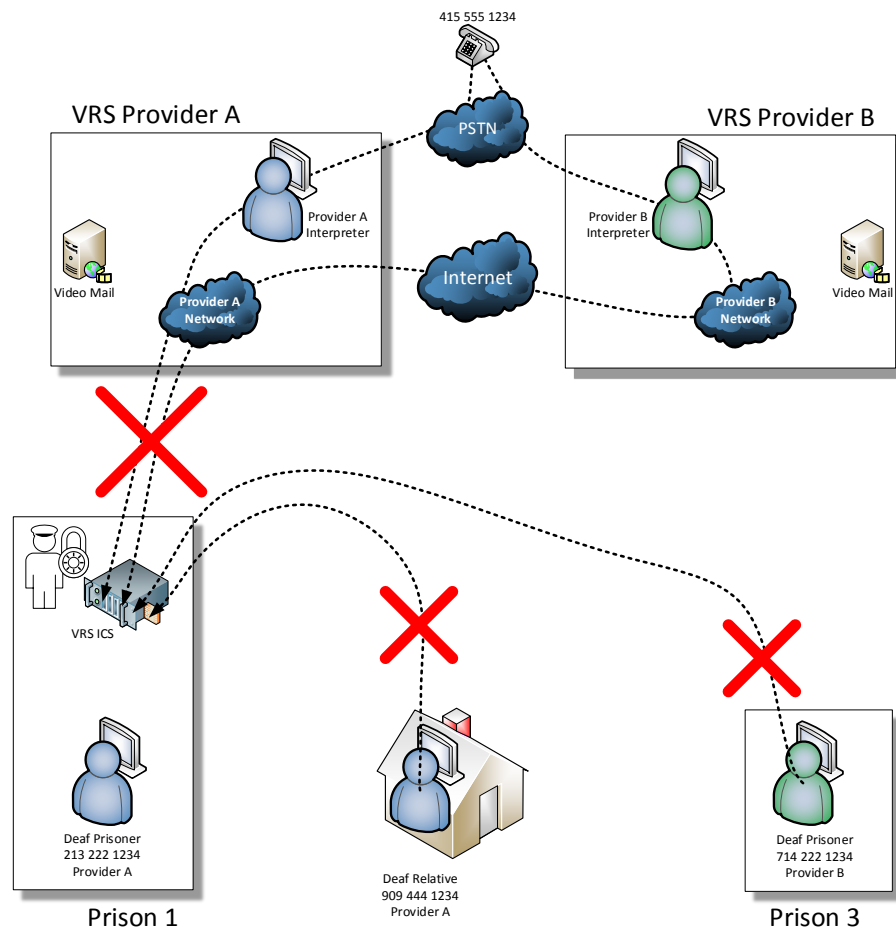
Conclusion

The commercial VRS system was developed to provide deaf individuals with unrestricted easy-to-use equal access to the telephone network. As such, it was architected without consideration for the security concerns that are typically addressed in voice ICS systems. The following list details nine inherent security risks that are introduced into a correctional facility by using commercial VRS in a prison environment.

- 1. No personally identifiable call history**
- 2. There is no method to restrict outbound telephone calls**
- 3. There is no method to restrict inbound telephone calls**
- 4. There is no method to restrict inbound telephone calls from alternative VRS providers**
- 5. There is no method to restrict peer-to-peer video calls (e.g., prison-to-prison calls)**
- 6. There is no method to block the prisoner from making an unlimited number of telephone calls**
- 7. VRS providers are not allowed to record calls**
- 8. There is no method to block the source of video messages**
- 9. There is no method to block the destination for video messages**

Recommended Actions to Secure VRS ICS

1. Standardize on strategic VRS providers
 - a. That are able to identify calls from prisoners
 - b. Will enforce a one-call-per connection rule
 - c. Only acquire VRS numbers from those strategic VRS providers
 - d. Obtain Power of Attorney to obtain and manage the deaf prisoner's 10-digit VRS number
 - e. Disable commercial VRS video mail for the deaf prisoners
2. Install a VRS ICS video recorder that captures video and audio from both parties and allows for call monitoring
3. Install a VRS ICS that:
 - a. Allows prison administrators to manage prisoner profiles
 - b. Authorizes VRS calls per prisoner profile
 - c. Blocks all incoming calls
 - d. Selectively records calls based upon the prison administrators rules



4. Use a video client that:
 - a. Requires each deaf prisoner to sign in using their own profile
 - b. Authenticates prisoners at the VRS ICS
 - c. Limits deaf prisoners to one VRS call per sign in
 - d. Supports maximum time limits per call
 - e. Auto signs off on idle
 - f. Notifies parties that calls may be monitored or recorded