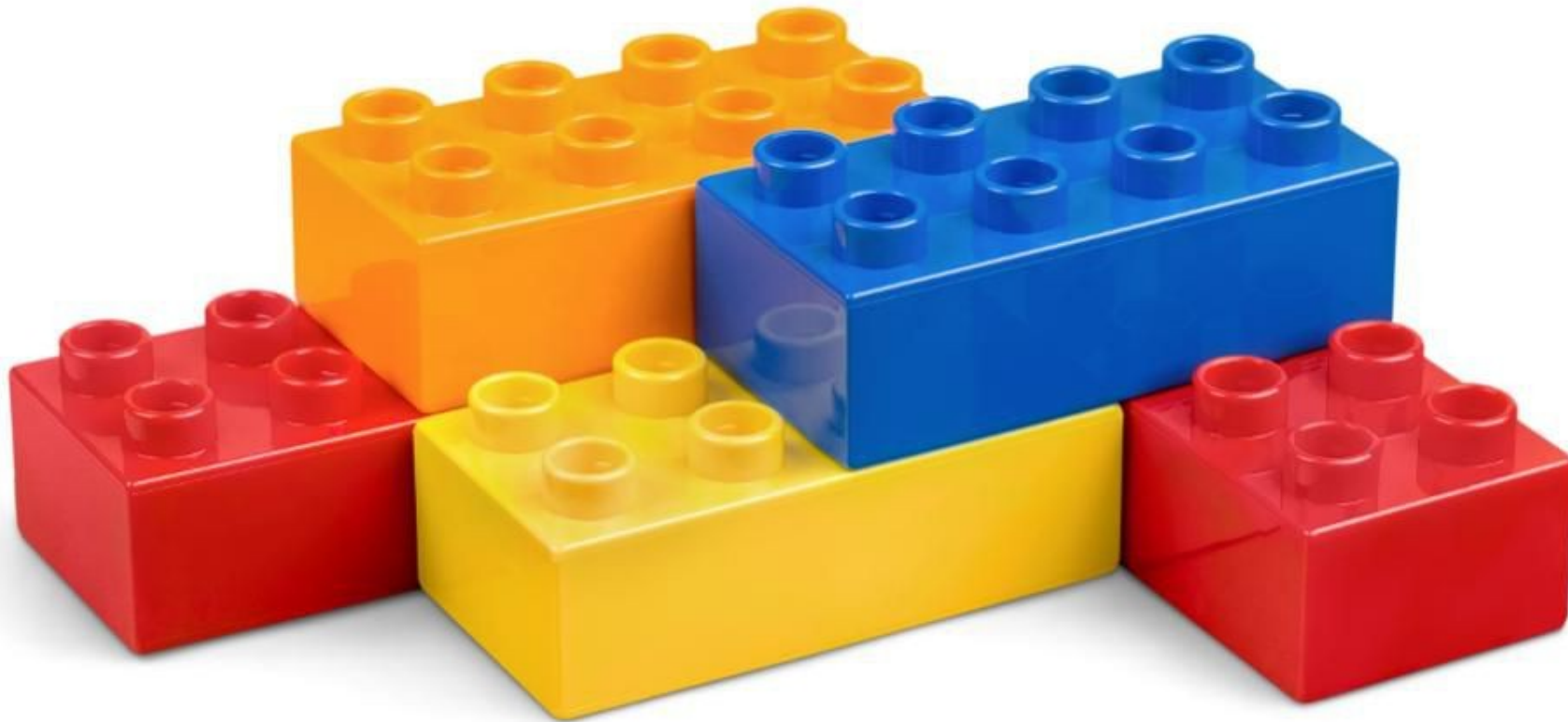




The BuildingBlocks Series :: libariadne
Relatore: Sergio Borghese

The Building Block Series



LibAriadne: an SSH Tunnel Lib

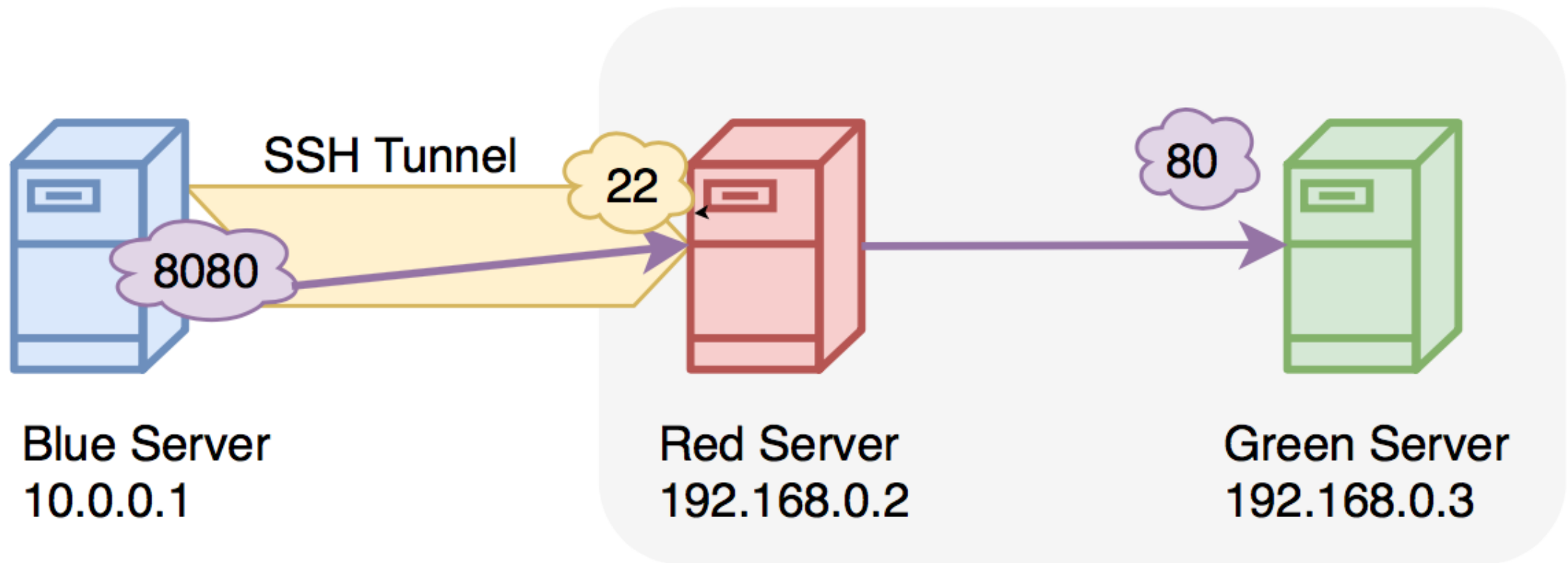


Tunnel Definition

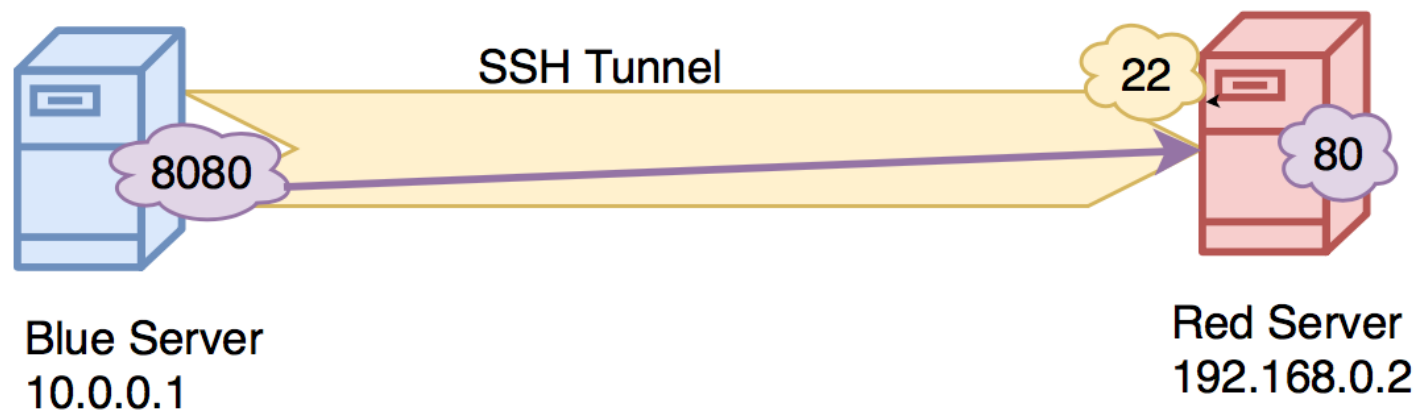
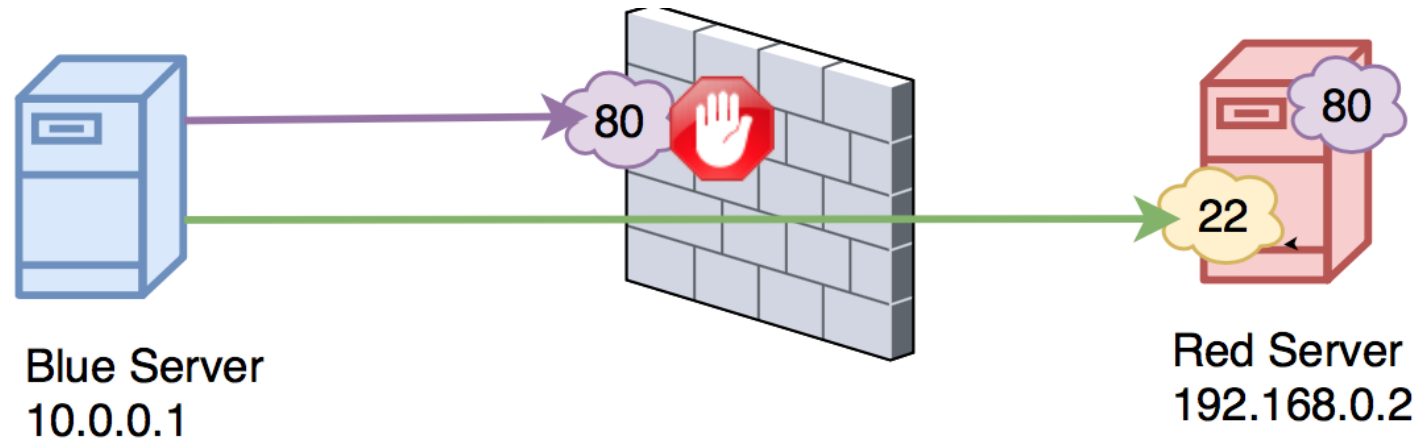
- a tunneling protocol is a **communications protocol** that allows for the movement of data from one network to another.
- involves allowing private network communications to be sent across a public network (such as the Internet) through a process called **encapsulation**.
- tunneling involves **repackaging** the traffic data into a different form, perhaps with encryption as standard, it can hide the nature of the traffic that is run through a tunnel.
- *SSH tunneling is a method of transporting arbitrary networking data over an encrypted SSH connection.*



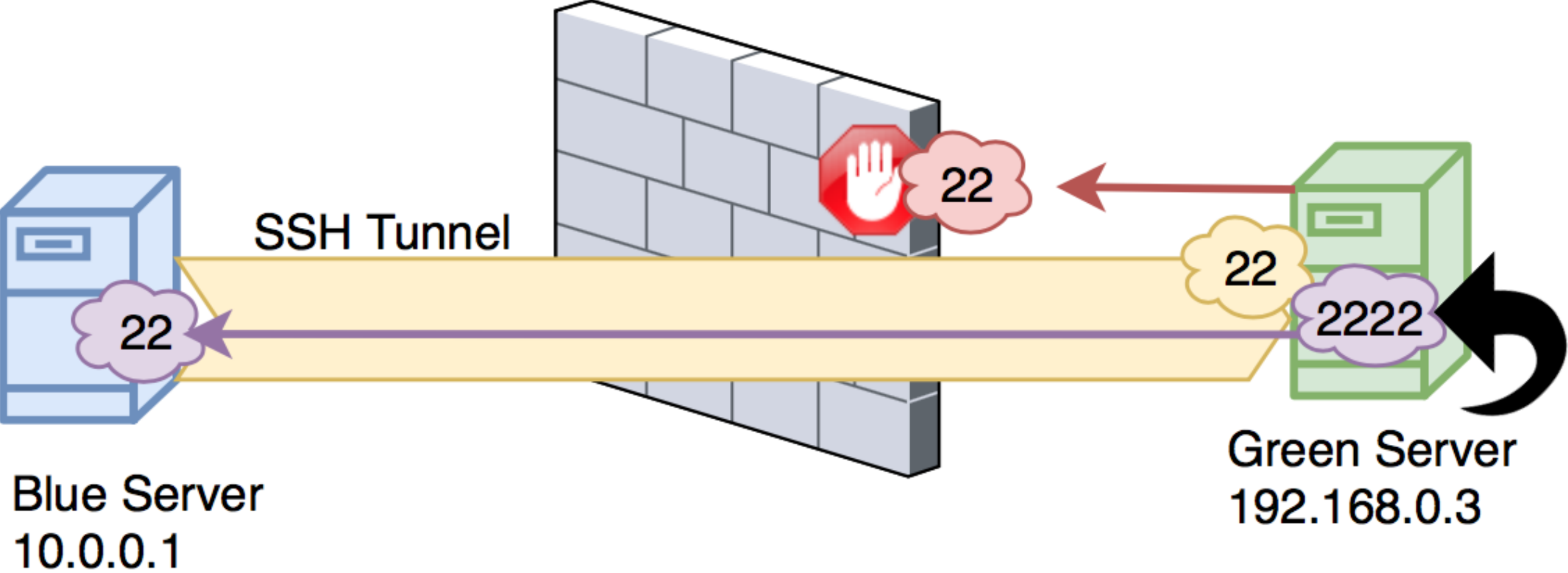
Proxy To Remote Server



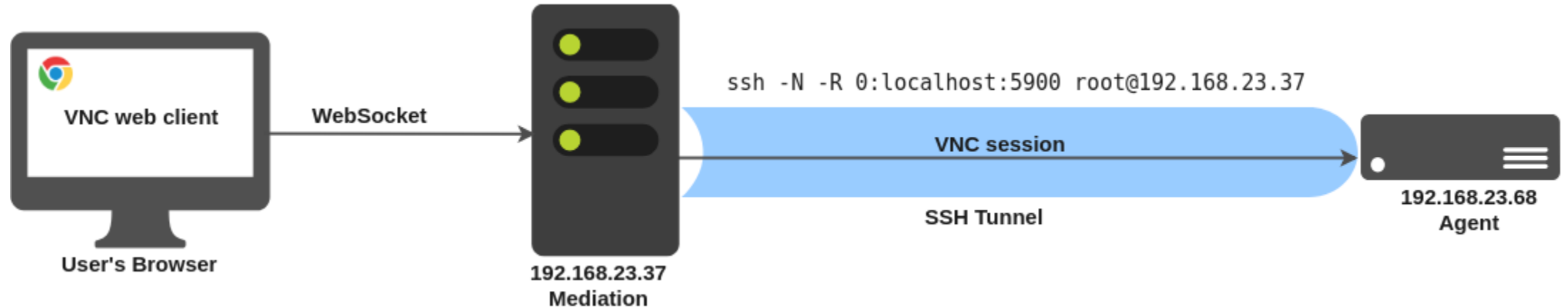
Port Forwarding



Remote Port Forwarding

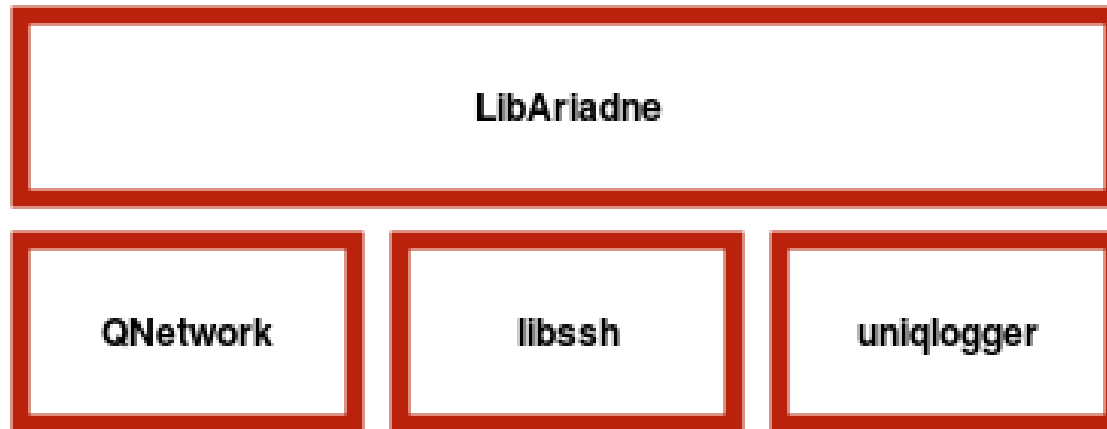


Atena Desktop Display



- Agent starts the ssh remote tunnel to mediation
- Agent starts a vnc server
- Mediation, using the ssh tunnel start is able to create a vnc connection to the agent

Libariadne stack



- Qt 4.8 or Qt 5.x
- Libssh 0.8.5
- Uniqlogger 0.6.1

1. Create lib config

```
ariadne::Config config;
// configure ssh server data
config.sshHost      = m_info.m_sshHost;
config.sshPort      = m_info.m_sshPort;
config.sshUsername  = m_username;
config.sshPassword  = m_password;
// configure ssh local and remote ip:port
// CUT...
// configure lib logging
config.logConfig    = m_logDescriptor->createWriterConfig();
// CUT
```

2. Create tunnel

```
m_tunnel = new ariadne::Tunnel(config);  
connect( m_tunnel, SIGNAL(started()),  
        this, SLOT(sshStarted()) );  
connect( m_tunnel, SIGNAL(stopped()),  
        this, SLOT(sshStopped()) );  
connect( m_tunnel, SIGNAL(error(ariadne::Error)),  
        this, SLOT(sshError(ariadne::Error)) );  
connect( m_tunnel, SIGNAL(clientDisconnected()),  
        this, SLOT(sshClientDisconnected()) );
```



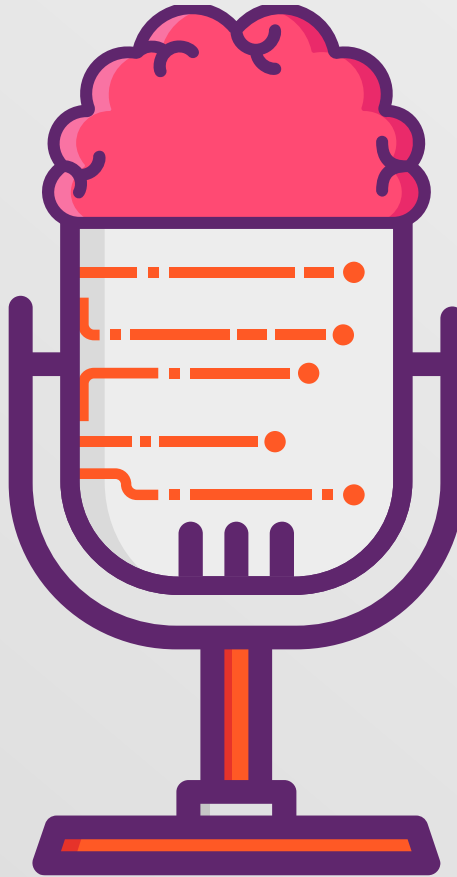
3. Start tunnel

```
m_tunnel->acceptConnections(true);  
m_tunnel->start();
```

Limits & Future Uses

- Only **Remote** Tunnel supported
- Extend libariadne with Local Tunnel support
- Agent Management via Remote SSH Tunnel
- Platform Service Proxy

Food for Thoughts



[1] How to Create SSH Tunnels

<https://www.tunnelsup.com/how-to-create-ssh-tunnels/>

[2] LibSSH <https://git.libssh.org/projects/libssh.git>

[3] Tunnel definition

https://en.wikipedia.org/wiki/Tunneling_protocol

[4] http://wiki.netresults.intranet/doku.php?id=iqac:agent_vnc

[5] <https://gitlab.netresults.dev:10443/netresults/utis/ariadne>