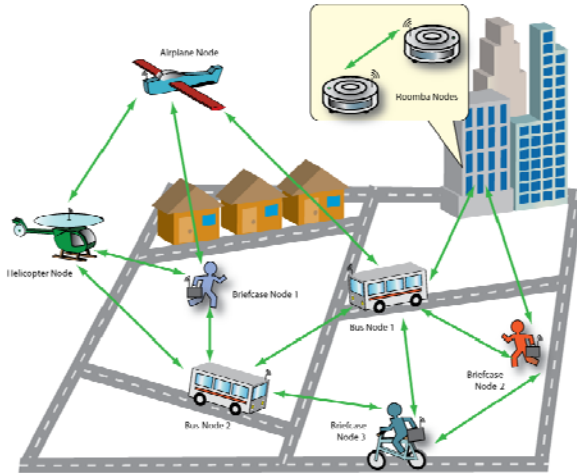


GUI Solution to Heterogeneous Testbed Complexity

SCORPION Overview

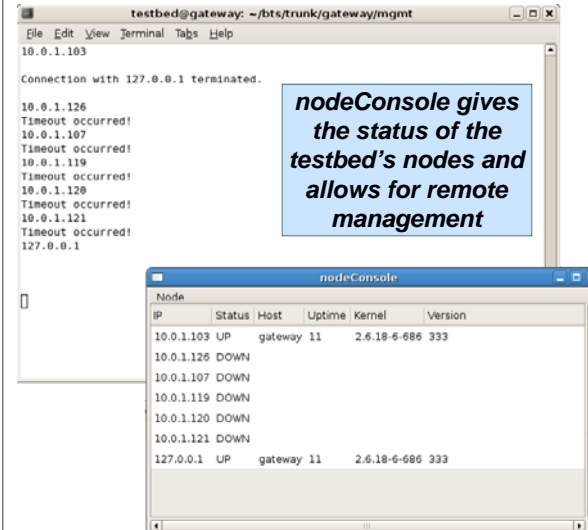
- Santa Cruz mOBile Radio Platform for Indoor/Outdoor Networks is a heterogeneous system
- 80+ mobile nodes spanned over UCSC's 2000 acres of redwood forest
 - Human, bus, aerial, and indoor nodes
- Used for protocol research
- Node usage scheduling via scripting



? ? ?
How do we manage SCORPION?

The answer is in the GUI!

nodeConsole



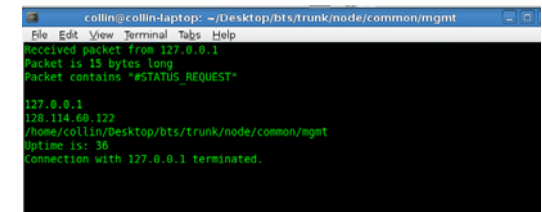
The screenshot shows a terminal window titled 'testbed@gateway: ~/bts/trunk/gateway/mgmt'. The terminal output displays a list of IP addresses and their status, with a blue callout box stating: *nodeConsole gives the status of the testbed's nodes and allows for remote management*. Below the terminal, a window titled 'nodeConsole' displays a table of node status:

IP	Status	Host	Uptime	Kernel	Version
10.0.1.103	UP	gateway 11	2.6.18-6-686	333	
10.0.1.126	DOWN				
10.0.1.107	DOWN				
10.0.1.119	DOWN				
10.0.1.120	DOWN				
10.0.1.121	DOWN				
127.0.0.1	UP	gateway 11	2.6.18-6-686	333	

- Written in C++
 - GTK used for GUI
- Allows user to track nodes
- Status updates every 10 seconds
- Nodes respond with status and console displays every 10 seconds
- User can shutdown, reboot, or redisplay all nodes from console

Agent Software

- Runs on node at startup
- Compatible with all types of nodes
- Communicates with management software
- Waits for a status request sent over socket
- Issues commands in the form of string literal
 - Once received, compares commands against list of registered strings



The screenshot shows a terminal window titled 'collin@collin-laptop: ~/Desktop/bts/trunk/node/common/mgmt'. The terminal output displays a received packet from 127.0.0.1, which is 15 bytes long and contains the string '*STATUS_REQUEST*'. The terminal output is as follows:

```
Received packet from 127.0.0.1
Packet is 15 bytes long
Packet contains '*STATUS_REQUEST*'
127.0.0.1
128.114.60.122
/home/collin/Desktop/bts/trunk/node/common/mgmt
Uptime: 1s: 36
Connection with 127.0.0.1 terminated.
```

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