

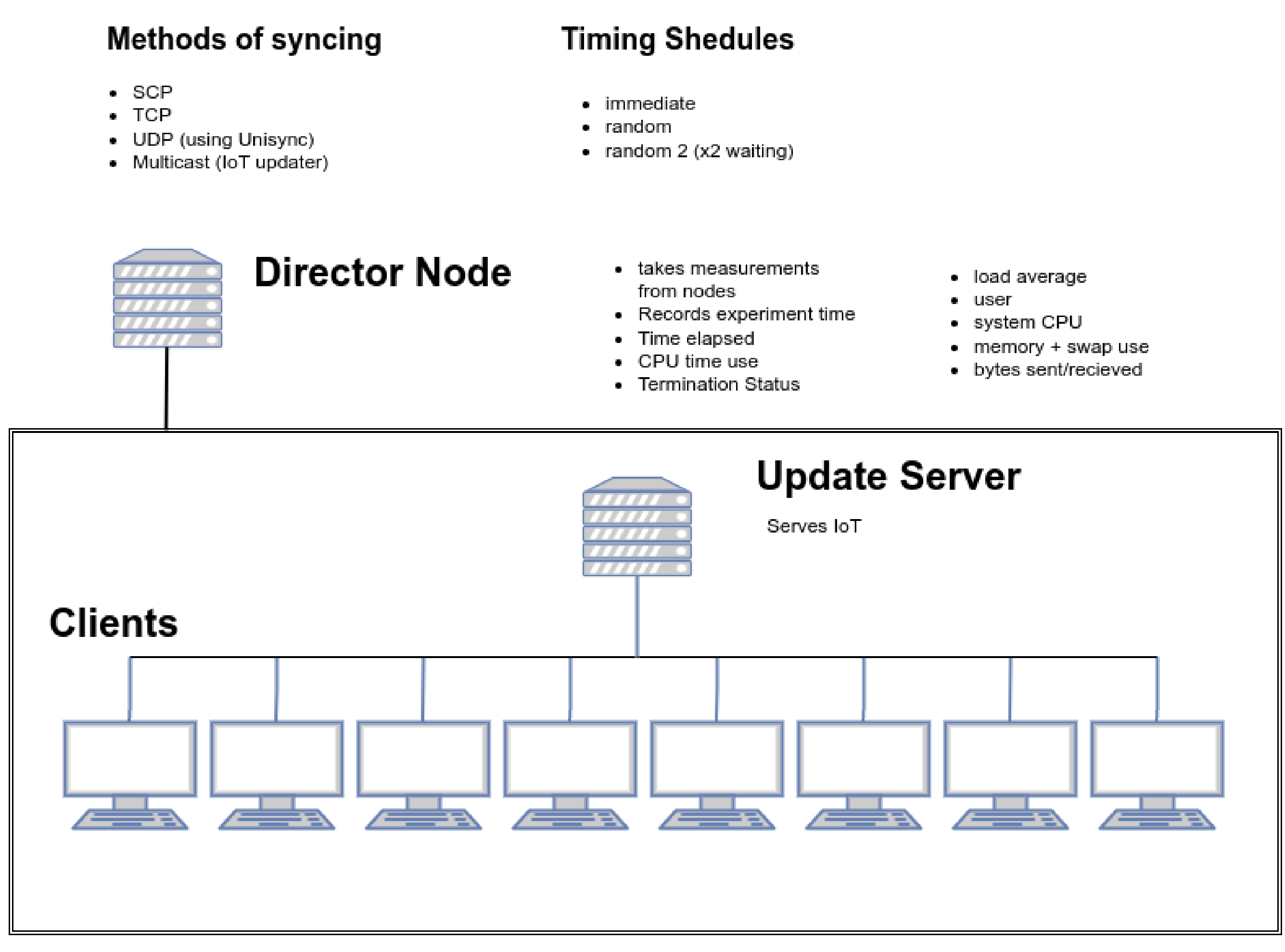
GOALS

- Provide example of multicast use beyond streaming
- Compare multicast with unicast
- Measure performance to prove multicast is more efficient at scale
- Demonstrate advantages of multicast at scale
- Test POC IoT multicast update code on known testbed

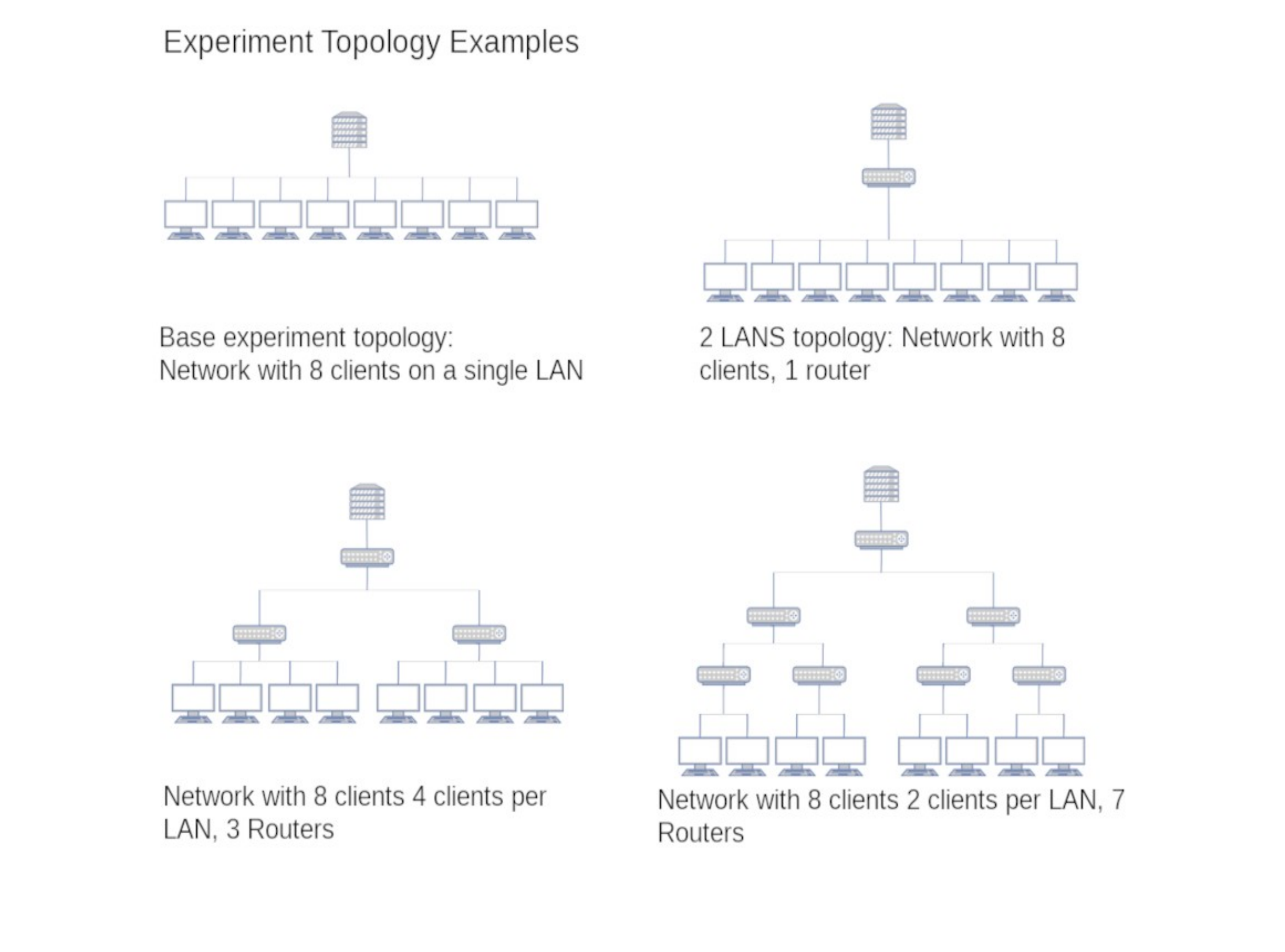
CHALLENGES

- Getting to grips with jfcd tools
- Integrating monitoring tool with iotup POC
- Getting enough nodes to test at high enough scale
- Consistent results

Experiment Setup: Virtual Wall 1



Node Topologies with routers

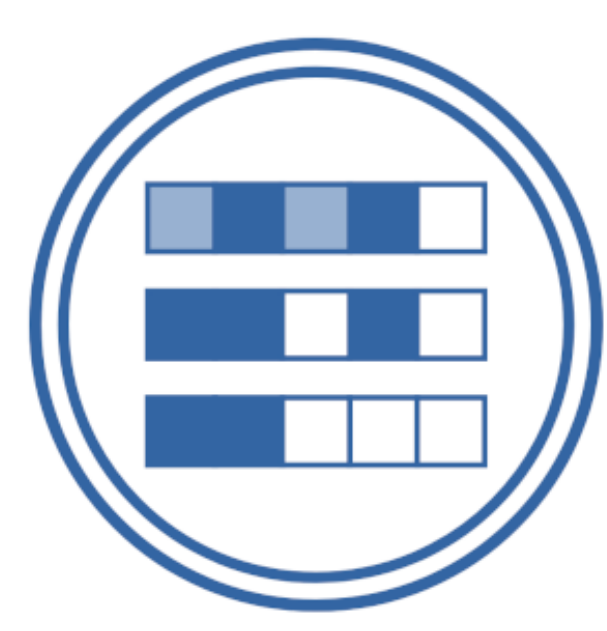


Improvements from Fed4fire experiments

Sped up development on other Librecast features on the roadmap.

MLD Snooping on Icsync (syncing tool)

Faster development on Icroute (multicast router daemon)



Testing POC multicast IoT syncing code.

Development of unicast equivalent to test UDP

Demonstration of a usecase for multicast that isn't streaming.

- Other benefits for Librecast:
- Testing integration with other projects like LWMON
- Increasing Knowledge of available Federated Testbeds
- Being able to test POC code on a known testbed.

CONCLUSIONS

- Multicast is unaffected by number of client requests
- Multicast performs better without random scheduling compared to unicast.
- Multicast requires fewer server resources to same number of clients, which could lead to financial and environmental benefits.
- Multicast appears to be more scalable
- MLD Snooping can be used in server implementations to trigger software downloads.

POST MORTEM

- Test across multiple labs
- Access with ability to switch on MLDv2 on Hardware routers
- Further experimentation is required to quantify the financial and environmental benefits.
- Increase scale of experiment to thousands of nodes