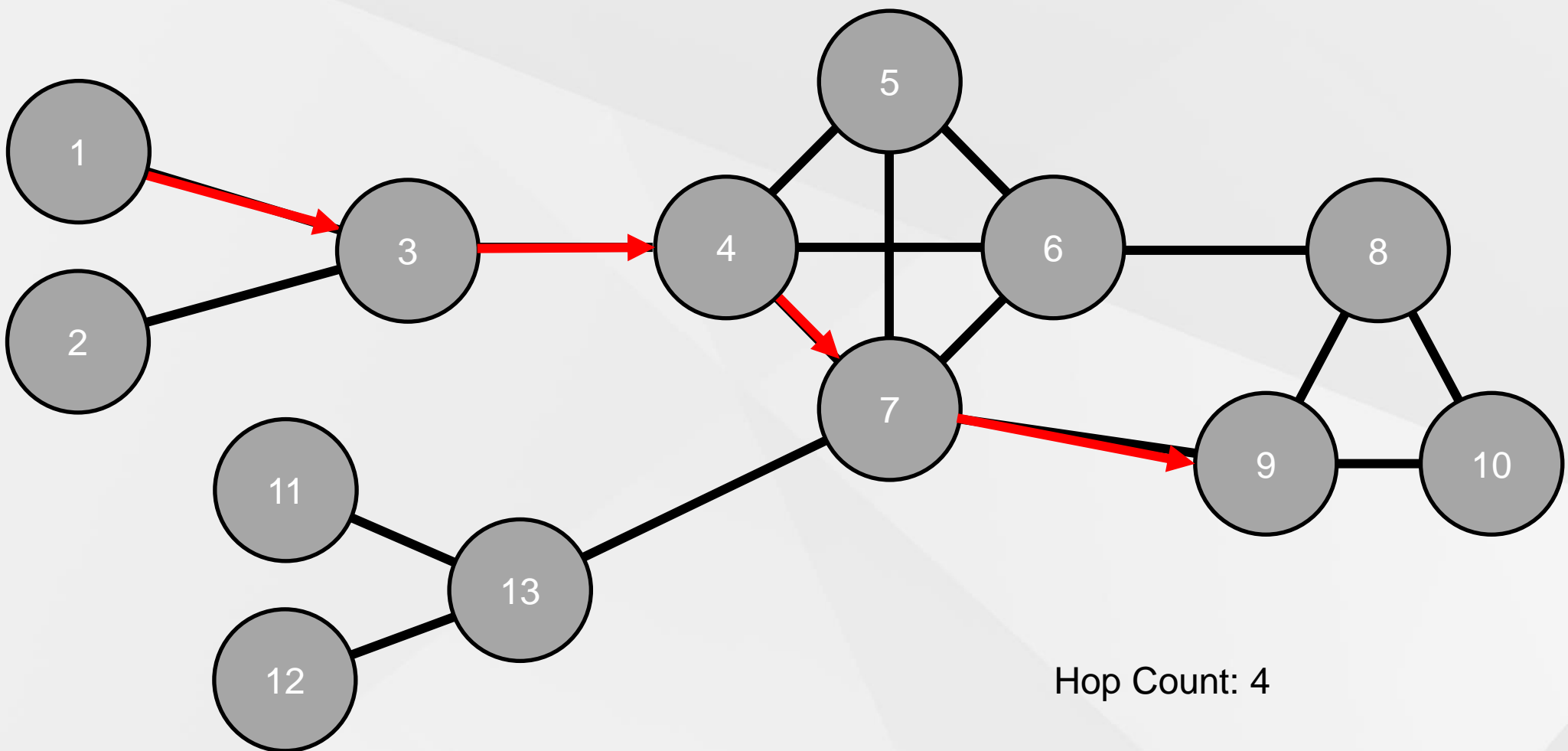


# Carbon Reduction through Compact Routing

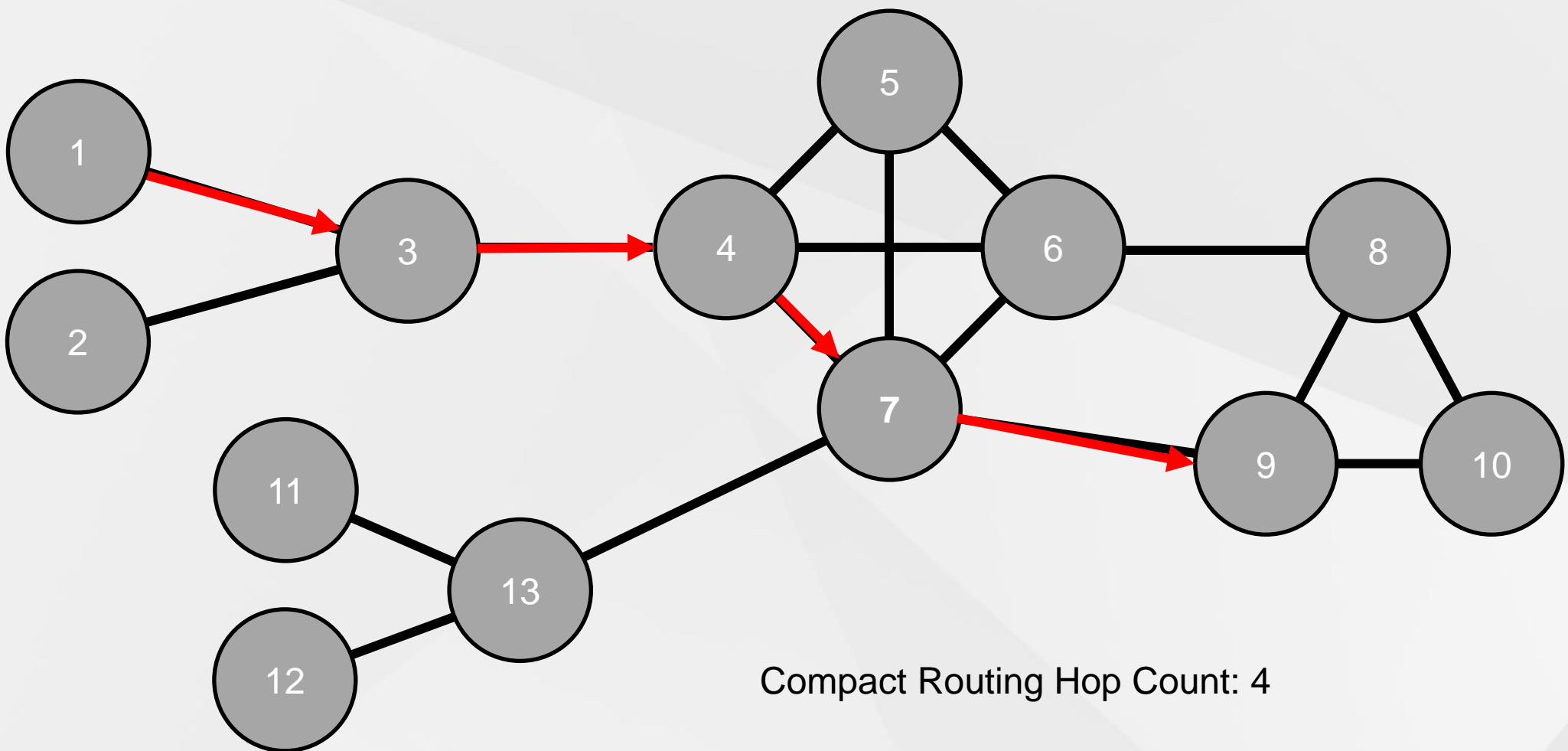
James Madeley

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**Supervisors** Prof. Iain Phillips & Dr. Posco Tso

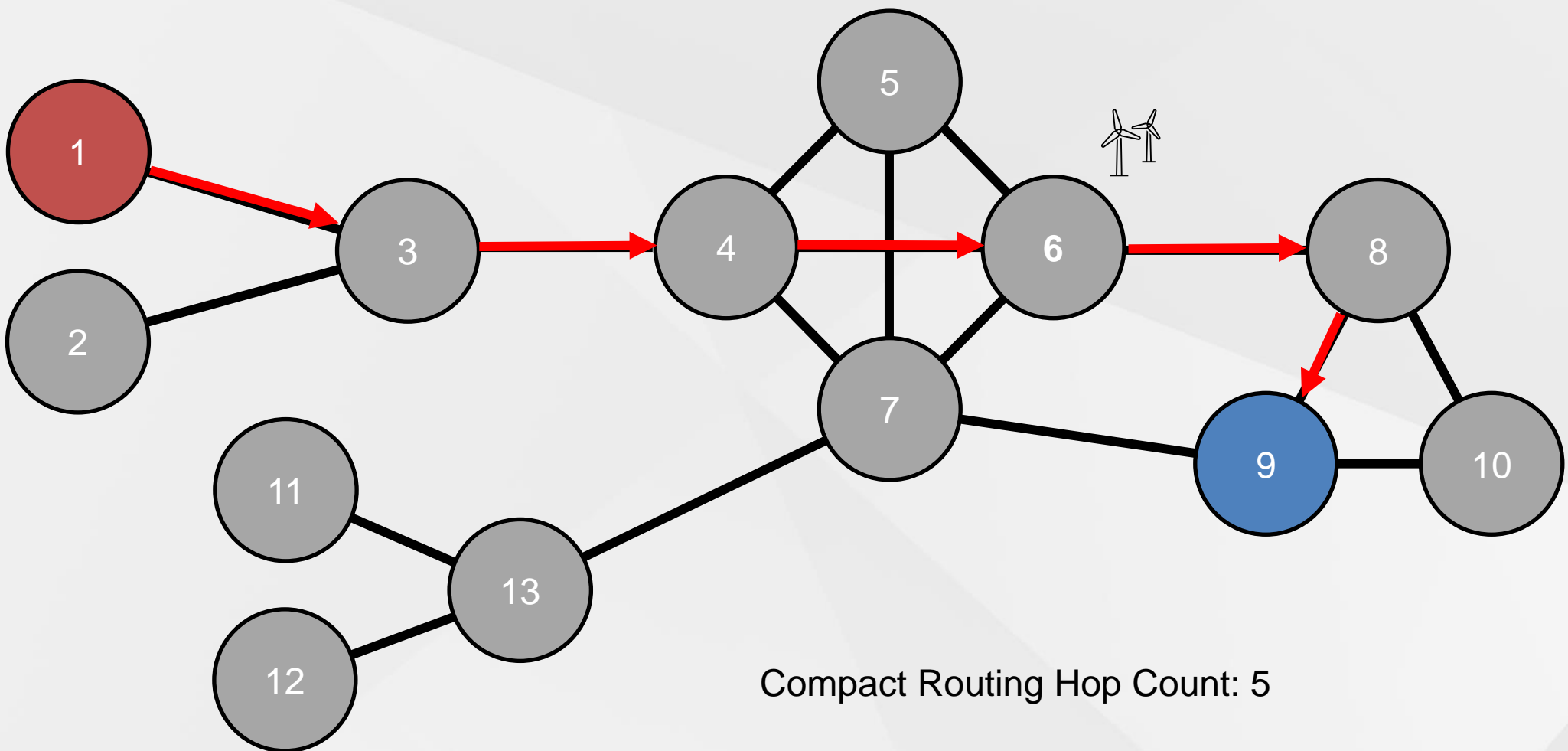


Hop Count: 4



Compact Routing Hop Count: 4

Example based on Jakma's protocol [1]



Compact Routing Hop Count: 5

Example based on Jakma's protocol [1]

# What are we doing?

Creating a compact routing daemon to run in large-scale emulated networks

Testing protocol engineering options, measuring:

- Table size
- Path length
- Convergence time
- Resilience
- Message count

# How can this be carbon-aware?

Reduced tables means reduced memory usage

Routers need not be built with ever-increasing memory capacity

Control landmark ASes based on carbon-awareness

# Summary

- BGP tables are large
- Compact routing trades shortest path for smaller tables (reducing memory)
- We are creating an implementation of compact routing
- It gives us another control for which ASes are used in paths

Any questions?

# References

[1] Paul Jakma. 2016. *A distributed, compact routing protocol for the Internet*. Ph.D. Dissertation. University of Glasgow.