



**COMP9242**  
**Advanced Operating Systems**  
**S2/2011 Week 2:**  
**PS to seL4**



**Australian Government**  
**Department of Broadband, Communications  
and the Digital Economy**  
**Australian Research Council**

**NICTA Funding and Supporting Members and Partners**



# Copyright Notice

---



## These slides are distributed under the Creative Commons Attribution 3.0 License

- You are free:
  - to share—to copy, distribute and transmit the work
  - to remix—to adapt the work
- under the following conditions:
  - **Attribution:** You must attribute the work (but not in any way that suggests that the author endorses you or your use of the work) as follows:
    - “Courtesy of Gernot Heiser, [Institution]”, where [Institution] is one of “UNSW” or “NICTA”

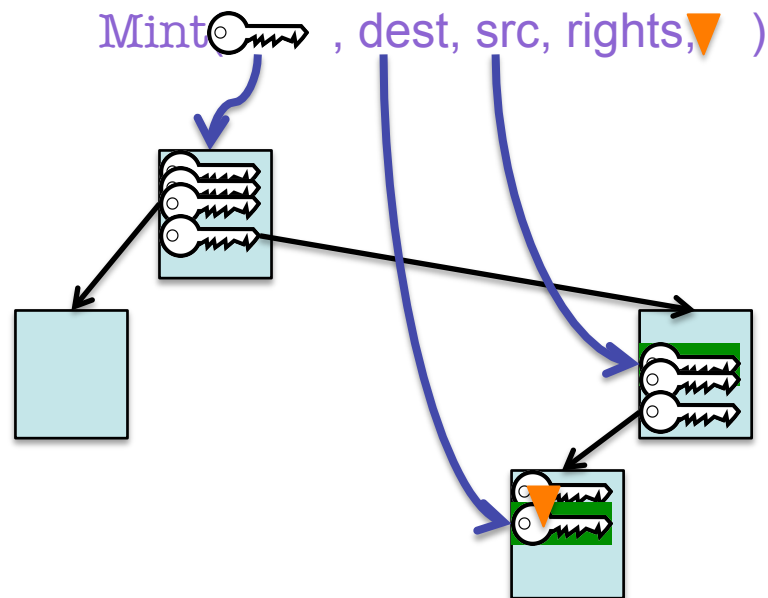
The complete license text can be found at  
<http://creativecommons.org/licenses/by/3.0/legalcode>



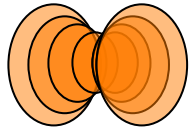
## PS to Cap Derivation



- Copy, Mint, Mutate, Revoke are invoked on CNodes



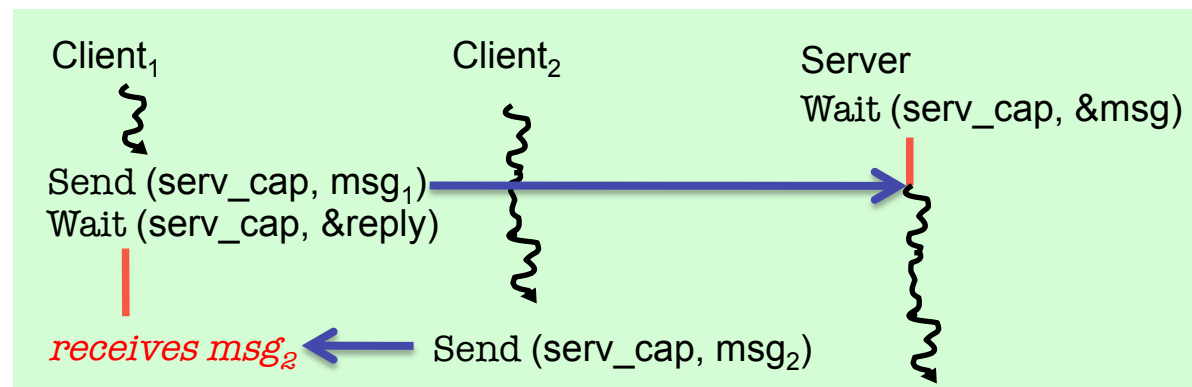
- CNode cap must provide appropriate rights
- Copy takes a cap for destination
  - Allows copying of caps between CSpaces
  - Alternative to granting via IPC



## PS to Endpoints



- Synchronous endpoints are synchronisation points
- They provide communication between a sender and a receiver
- **BUT** that doesn't mean they have a sender and receiver "side"
- An endpoint is essentially a queue of senders or receivers
  - first invocation of an empty EP queues the caller
  - any further callers of the same kind (sender/receiver) queue behind
    - modulo prio
- Consequence: 2-way communication generally requires two EPs



- Reply caps automatically provide the second endpoint!