Progress of MST improvement from AMD

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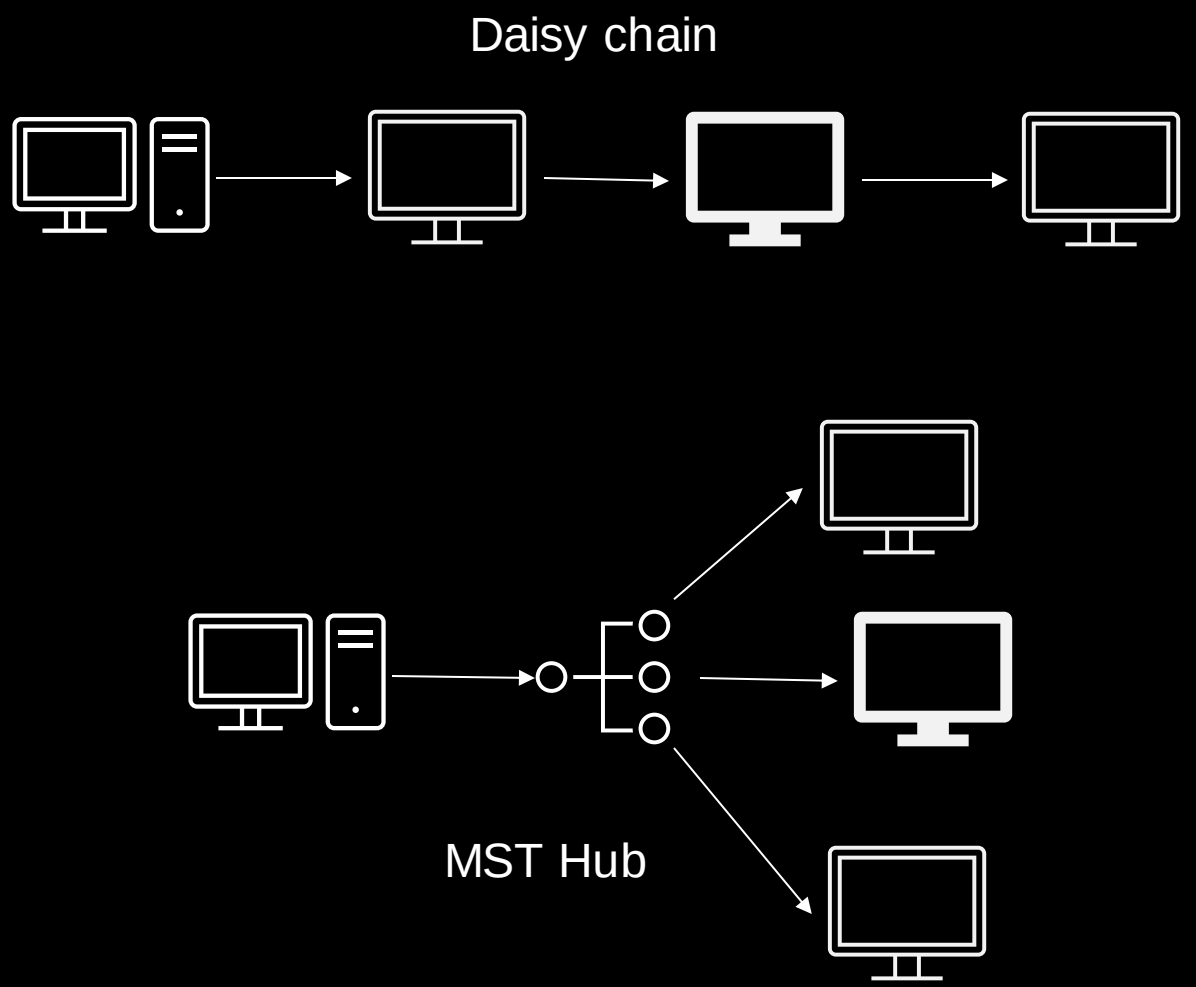
together we advance_

Agenda

- Background knowledge
- Concerns while enabling MST streams
- MST flow in Linux
- Progress of enhancement
- Demo

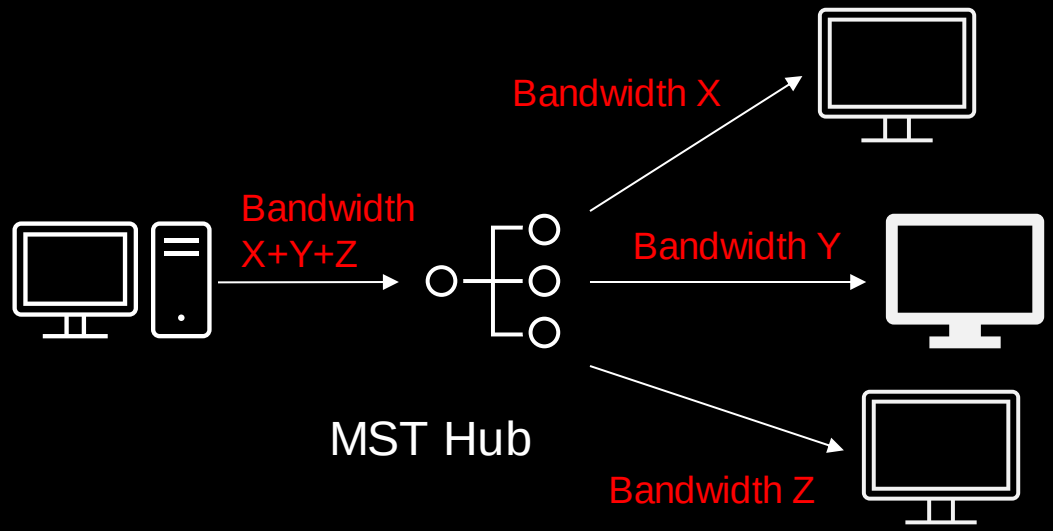
Background knowledge

- Multi-Stream Transport (MST)
  - DP 1.2
  - Time-Division Multiplexing alike
    - 64 time slots a round
  - Tree alike topology
  - E.g., Daisy chain, hub, dock, etc.



Concerns while enabling MST streams

- Concerns underneath
  - How many stream sinks in the topology?
  - Which mode can be displayed?
  - Is path available bandwidth sufficient?
  - What are the capabilities of the DP outputs on the MST hub?
  - Is DSC an option for a stream?
  - At which output point should we decompress the DSC bitstream?
  - Interactions among MST devices

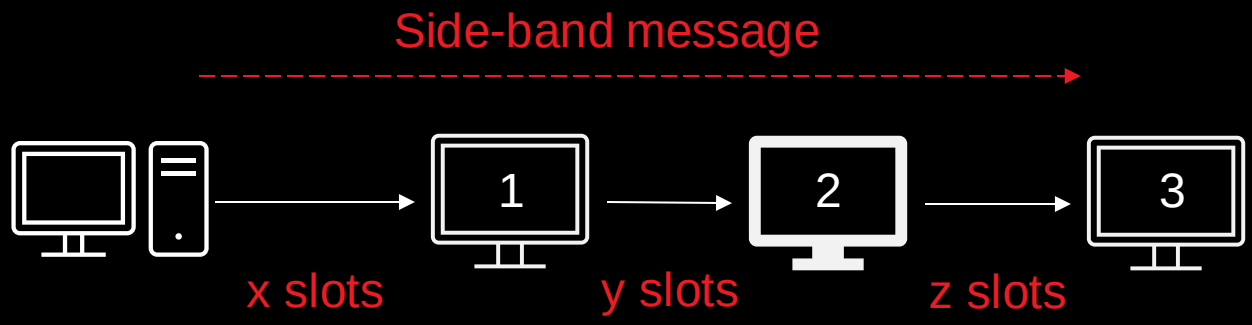


MST flow in Linux

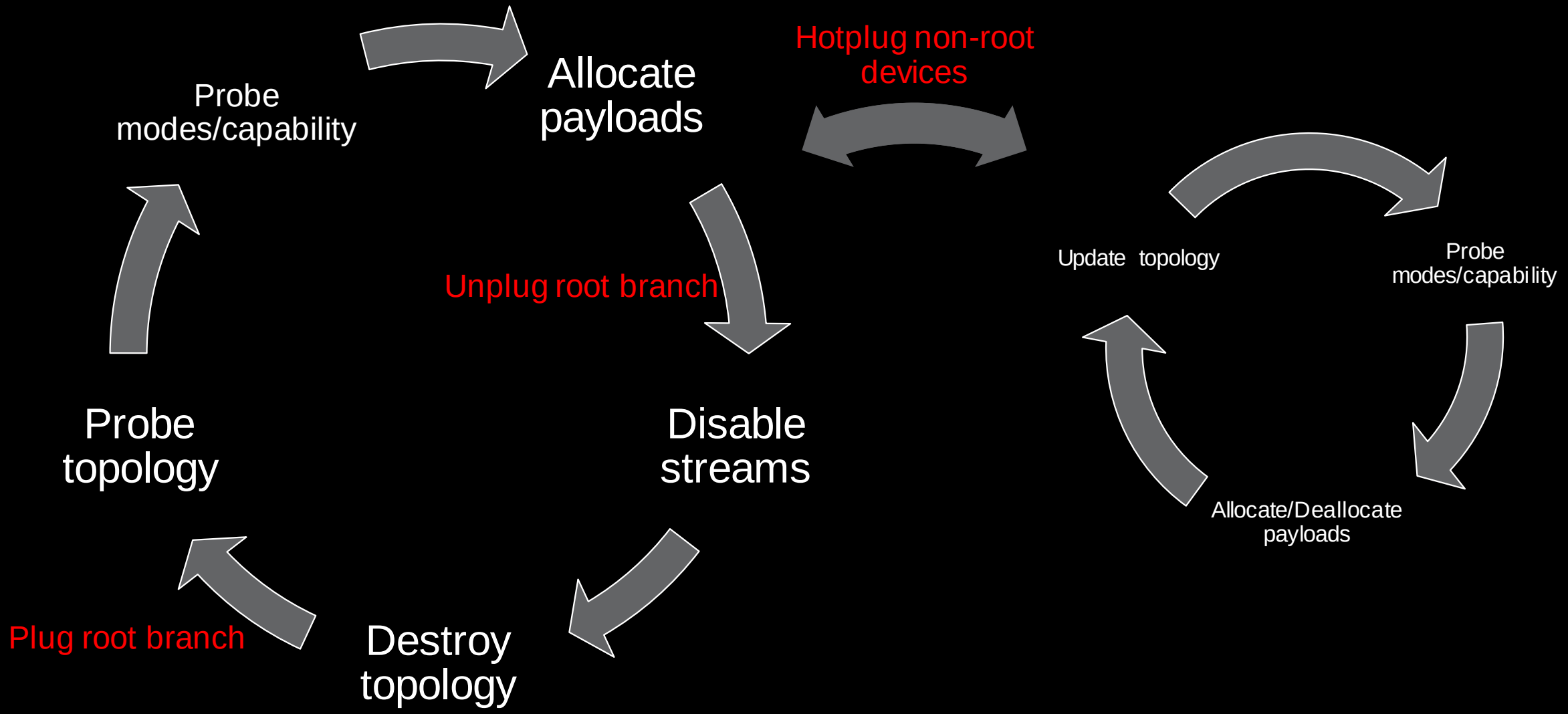
- MST devices use side-band message to request/reply to each other
  - DRM provides helper functions to help construct side-band message
  - Driver sends side-band message to explore topology, read remote port capability and allocate/deallocate payloads

e.g.,

Send ALLOCATE_PAYLOAD message to allocate bandwidth for stream to monitor 3



MST flow in Linux



Progress of enhancement

MST flow	• Fix message header/content construction in DRM • Avoid messing up allocation table by stale topology • Enhance peer device detection (i.e. SST branch device) • Refactor message handling in AMD dm IRQ
DSC	• Consider multi-function enumeration • Consider DSC while validating modes • Manipulation of enabling/disabling DSC
DP2.0	• Support time slot allocation for 128b/132b encoding • Support DSC passthrough
Sustaining	• Add tags to indicate MST flow status • IGT automated test tool

Demo

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