

Throwing MUD into the FOG: Defending IoT and Fog by expanding MUD to Fog network

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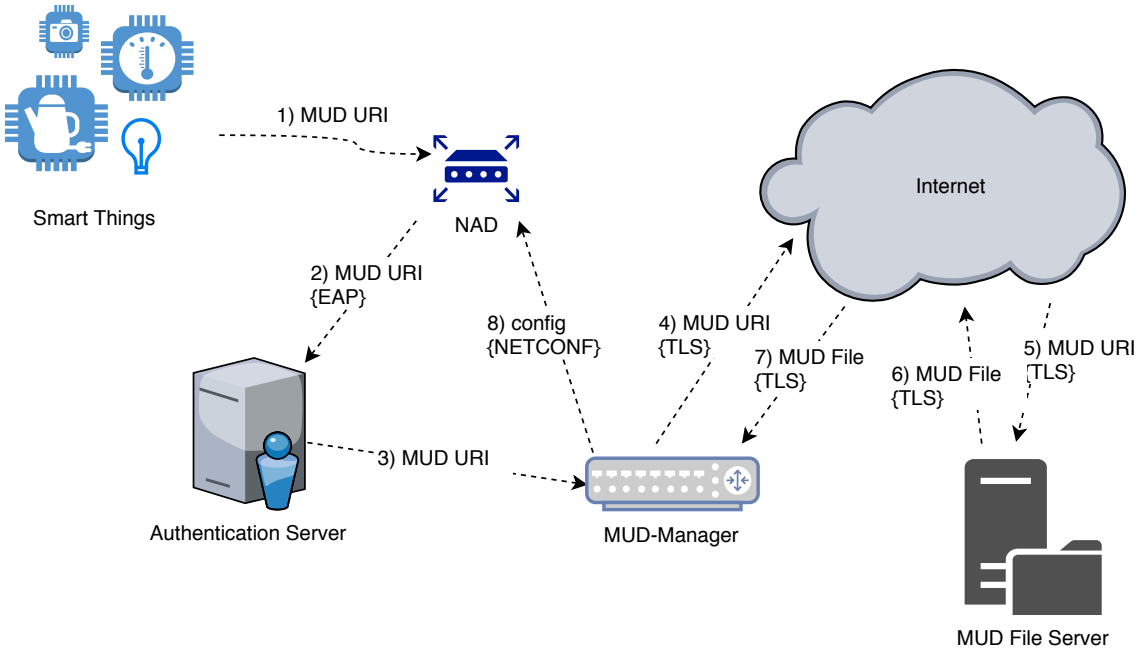
Manufacturer Usage Description (MUD)

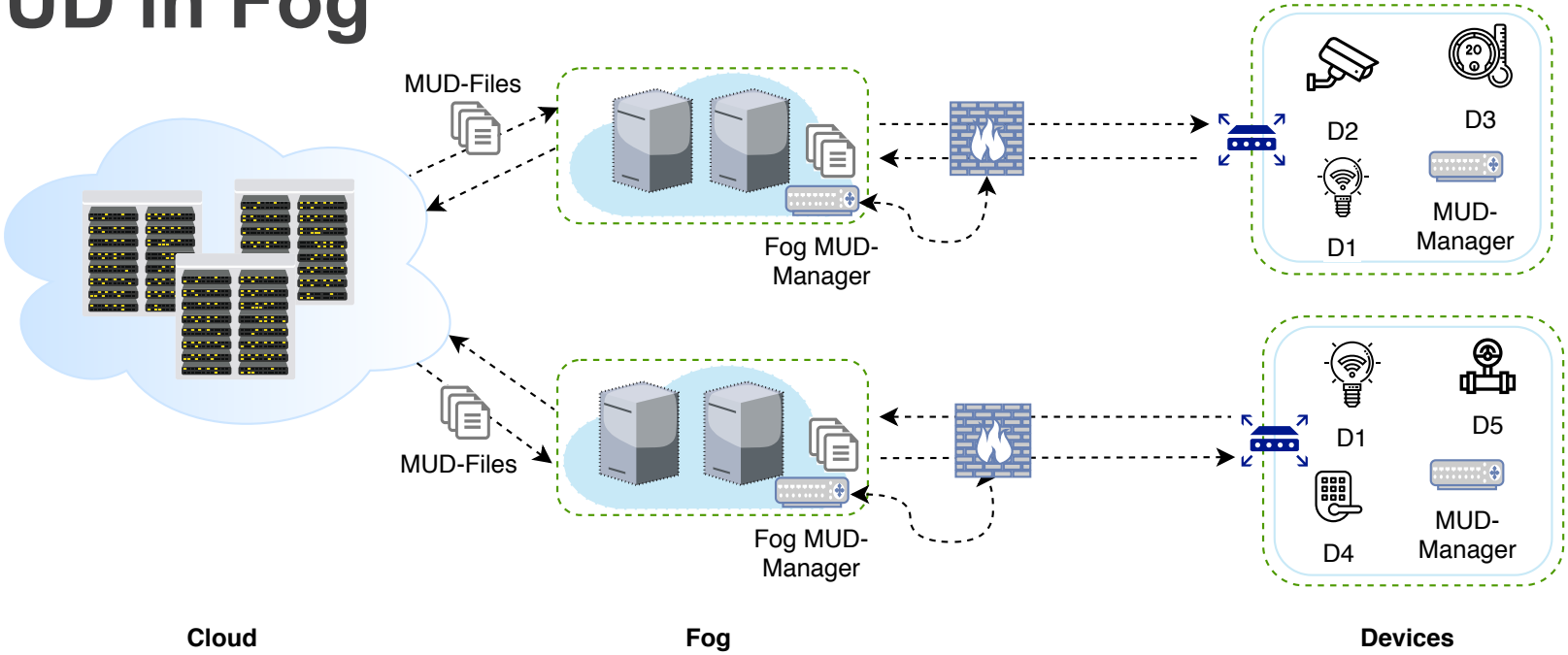
- IETF standard
- Automatically configure devices' access control
- Isolation-based defense
- Designed for LAN



MUD Workflow



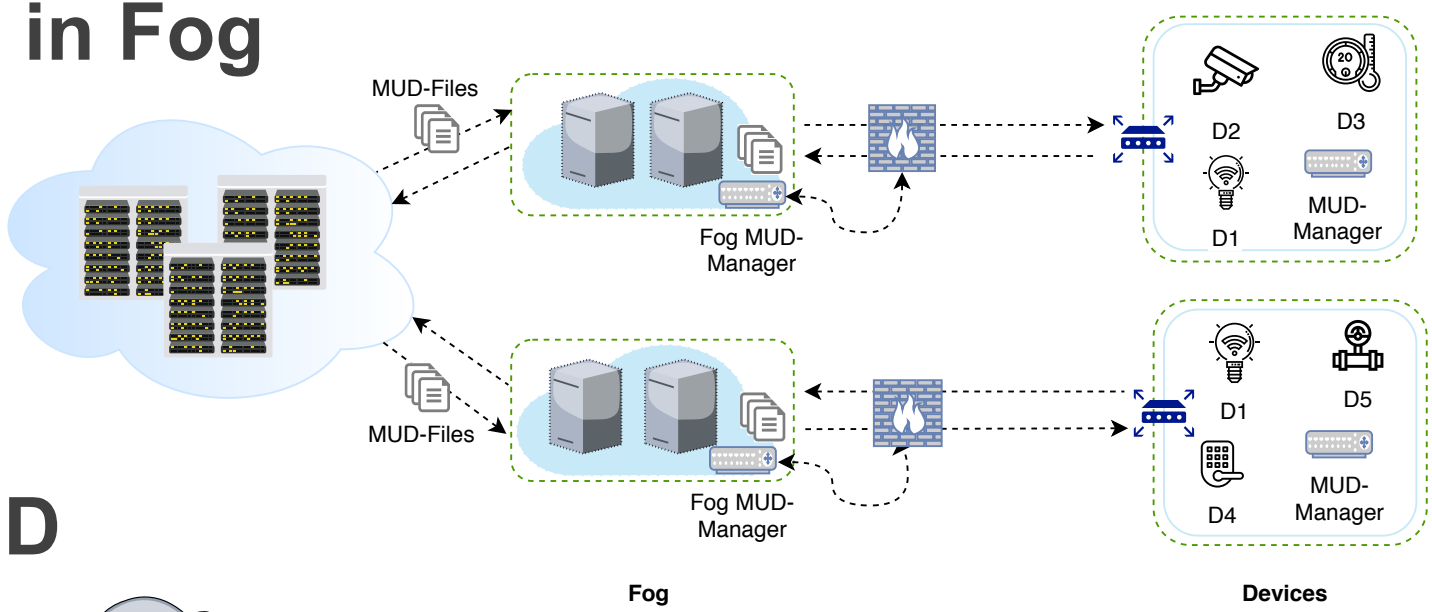
MUD in Fog


MUD-Files
Fog MUD-Manager
D2
D3
D1
MUD-Manager
MUD-Files
Fog MUD-Manager
D1
D5
D4
MUD-Manager
Cloud
Fog
Devices

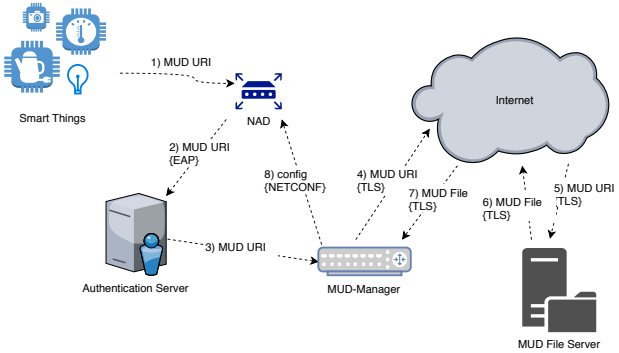
MUD vs MUD in Fog

	MUD	MUD in Fog
Onboarding	Inside the network	Outside of the network
Traffic Source	Inside the network	Outside of the network
Accessing the MUD-File Request	Initiated inside the network	Initiated outside of the network

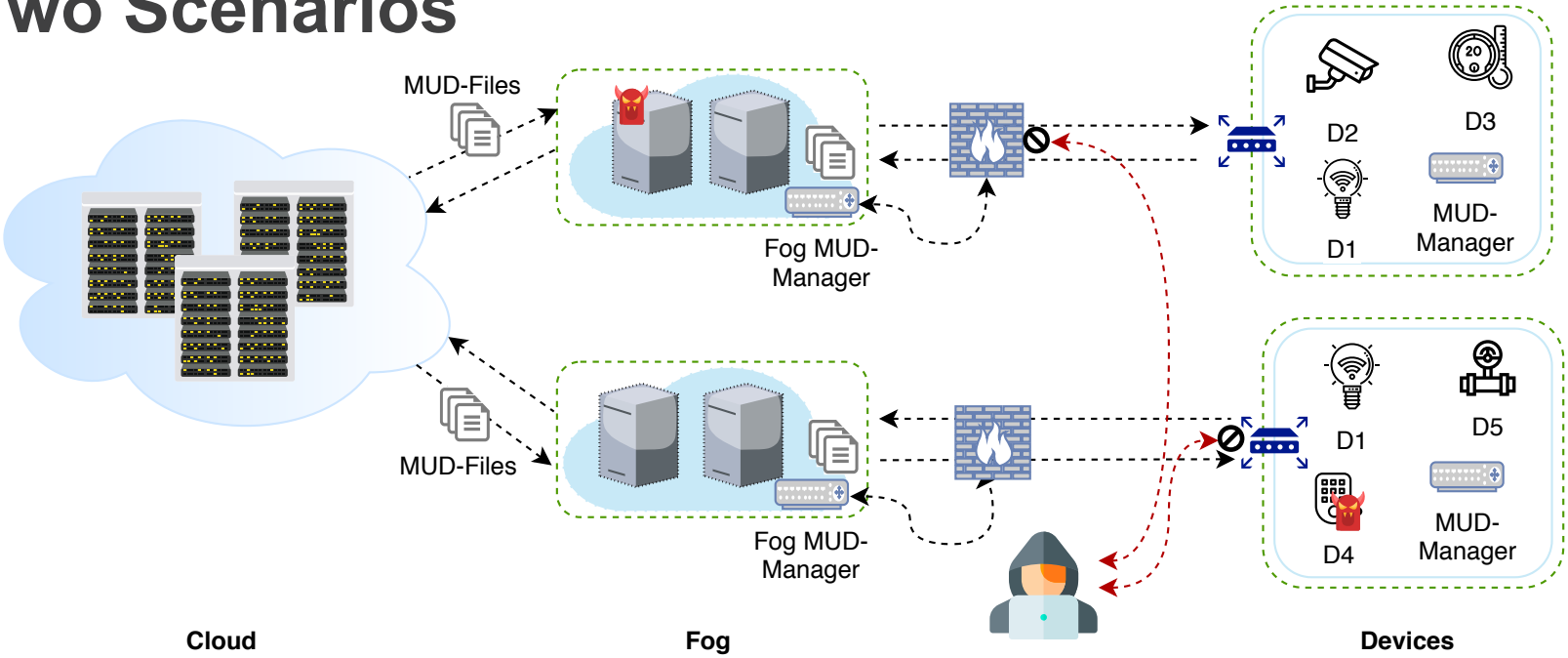
MUD in Fog



MUD



MUD in Fog Benefits: Two Scenarios



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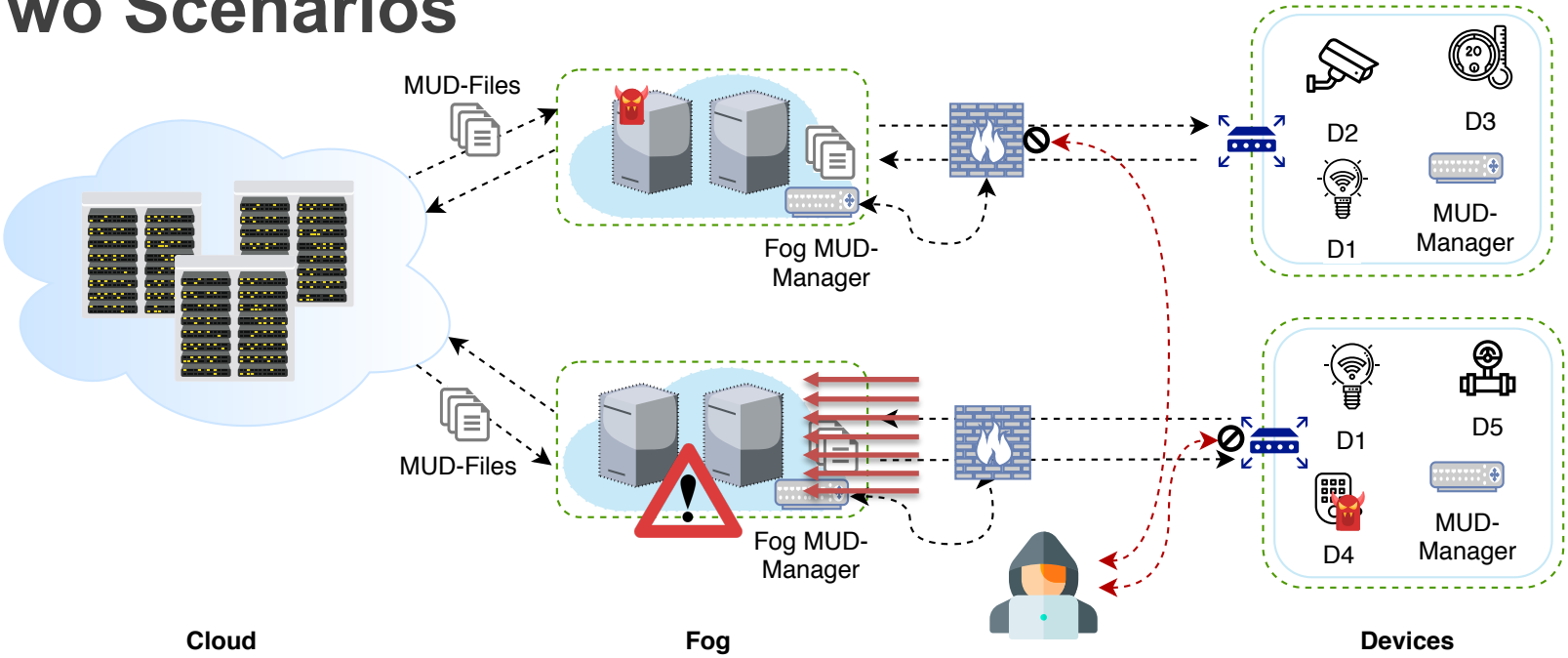
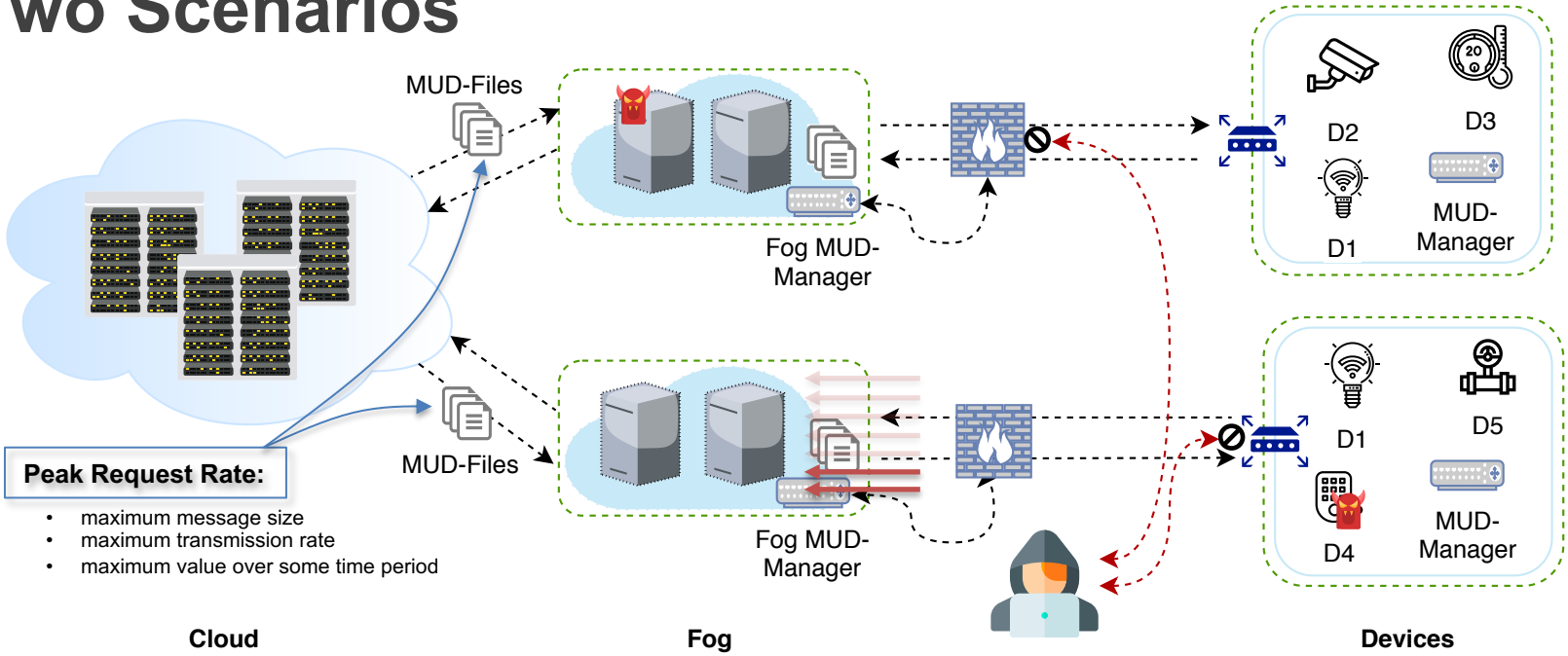


MUD in Fog Benefits: Two Scenarios



Assumptions, Challenges and Limitations

- [A] Manufacturer has full control over the Fog network
- [C] Traffic estimation
- [C] Supporting devices from other companies, e.g. controller
- [L] Protecting Fog MUD-Manager

Thank you

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