G-LAB DEEP Security

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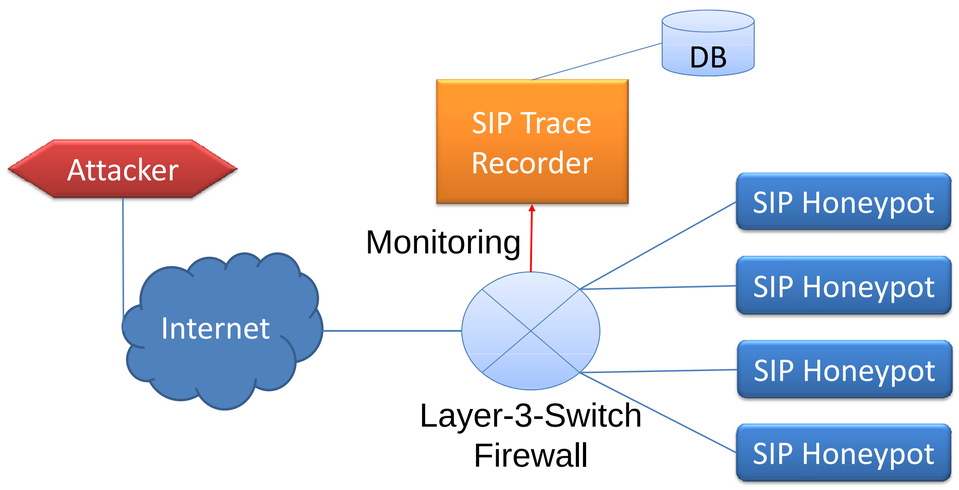
New technologies are always are always exploited for new attacks

Attacks occur on different layers e.g. service layer, network layer

Attack patterns are adapted, e.g. SPAM: Snail Mail/Email/SMS/SPIT

Different attack opportunities for each service/application

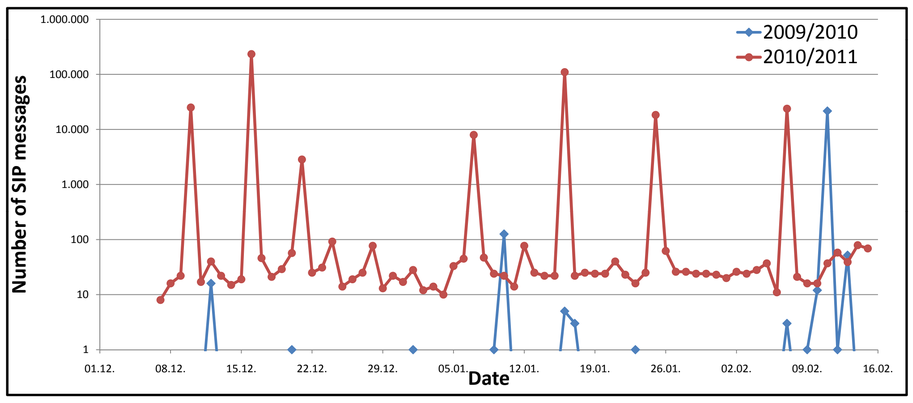
Current situation: SIP VoIP example



Drawbacks

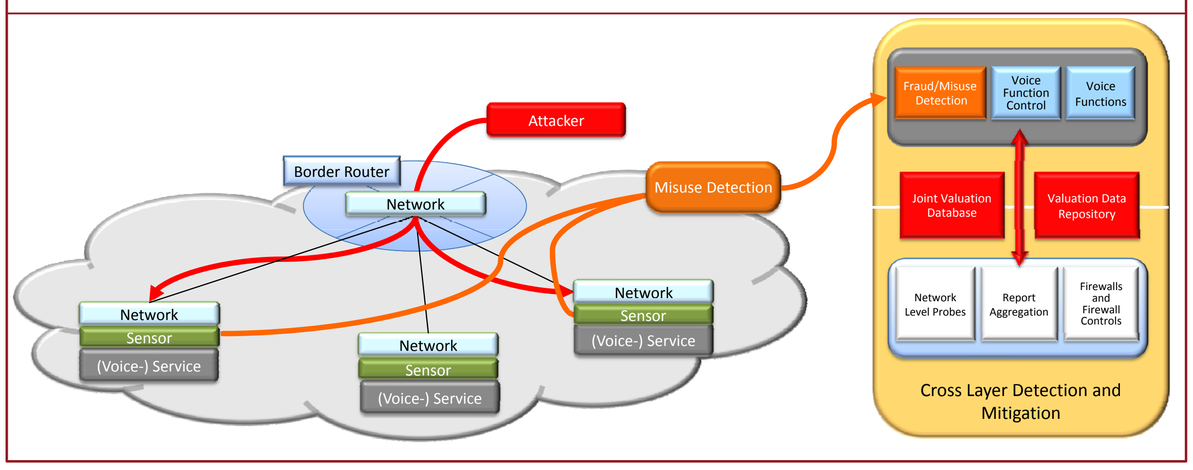
- No real-time reaction
- Limited view
- Only single layer

Systematic SIP attacks already existing, intensity is increasing significantly

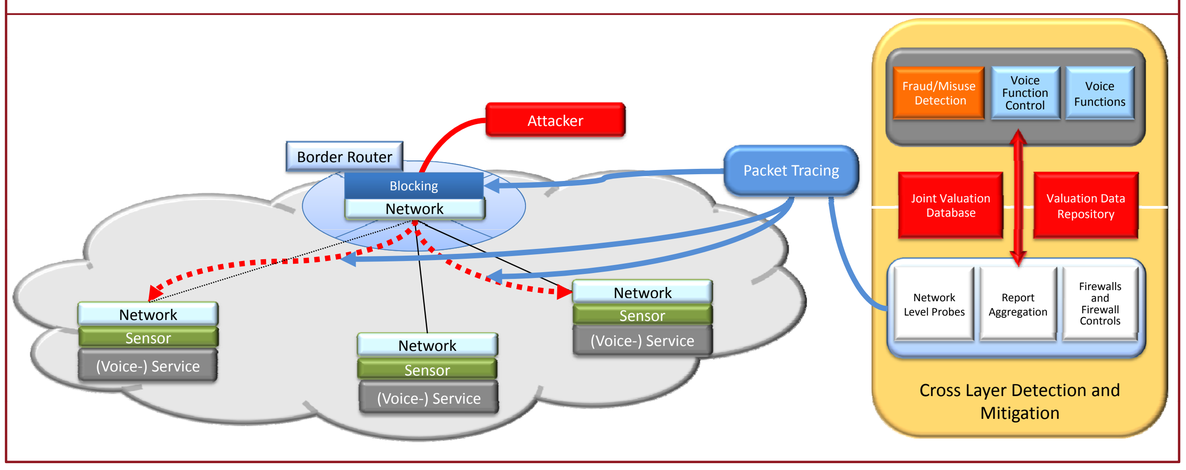


GLAB DEEP: Cross-layer distributed detection & mitigation

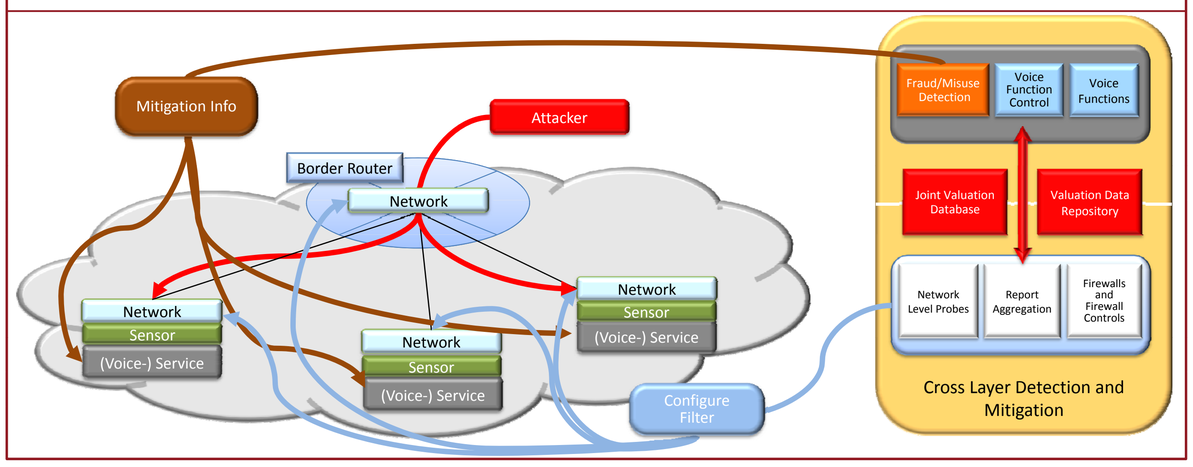
Detection view



Blocking view



Mitigation view



- Attacker tracing to border router
- Real-time adaption due cross layer composition
- Distributed detection & mitigation
- Cross layer communication

Challenges for Future Internet security research

- Benefit from new architectures without introducing new vulnerabilities, e.g. service oriented approach/functional composition
- Algorithms for real-time, distributed, cross-layer cooperation
- Generic and service specific misuse and attack patterns
  Proactive approach to detection and mitigation
- DoS is different from other threats (and very popular)
  No acceptable solution concepts known yet