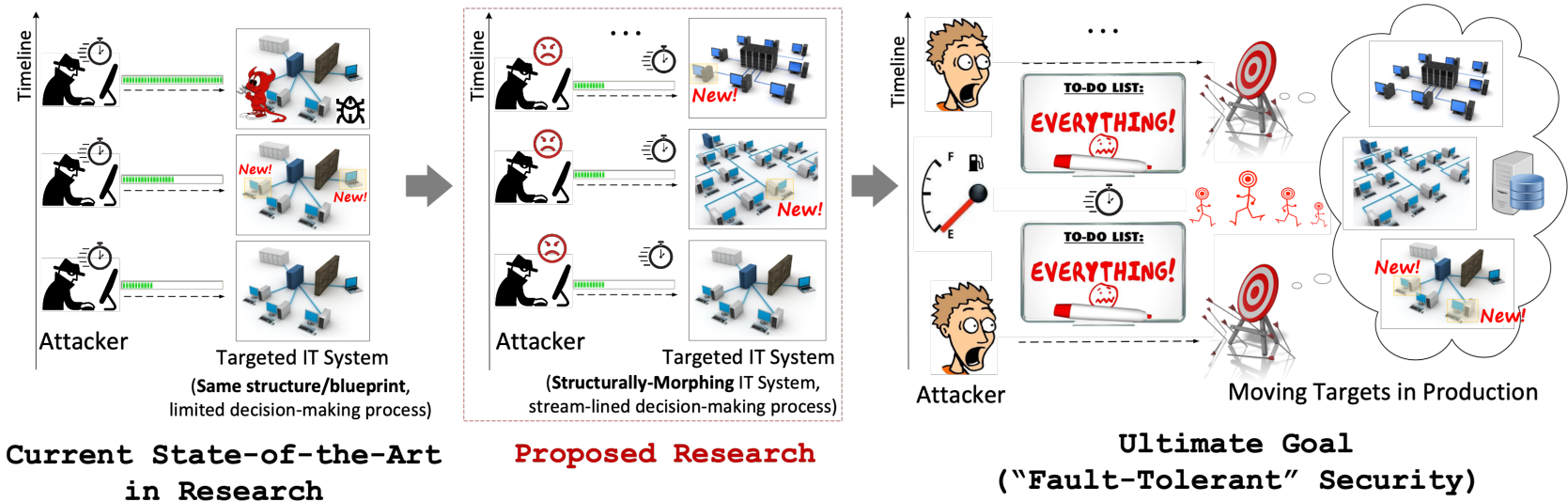# Creating and Managing Structurally-Morphing IT Systems – Moving Targets

Challenge:
- Creating and managing structurally-changing (morphing) IT systems in real-world scenarios

Scientific Impact:
- Facilitate a change from "compromise and persist" to the more challenging obligation of repeatedly attempting to compromise a constantly-changing IT system

Current State-of-the-Art in Research

Targeted IT System
(**Same structure/blueprint**, limited decision-making process)

Proposed Research

Targeted IT System
(**Structurally-Morphing** IT System, stream-lined decision-making process)

Ultimate Goal ("Fault-Tolerant" Security)

Moving Targets in Production

Solution:
- A framework for creating and managing structurally-changing (morphing) IT systems that includes a high-level multi-layered abstraction and a "compiler" that converts the abstract requirements into actual IT systems
- Building blocks: virtualization, containerization, configuration management tools, and hardware enclaves

Broader Impact:
- Structurally-morphing IT systems will force a change in the current modus operandi of cyber-attackers
- Rebalancing the cyber security landscape by increasing the amount of resources attackers need to spend