

VULNERABLE DEVICES EASILY DISCOVERED

66.76.137.191 66-76-137-191.bigscmtc01.com.sta.suddenlink.net

VPN Industrial Control System

City	Big Spring
Country	United States
Organization	Suddenlink Communications
ISP	Suddenlink Communications
Last Update	2017-10-21T10:28:51.809075
Hostnames	66-76-137-191.bigscmtc01.com.sta.suddenlink.net
ASN	AS19108



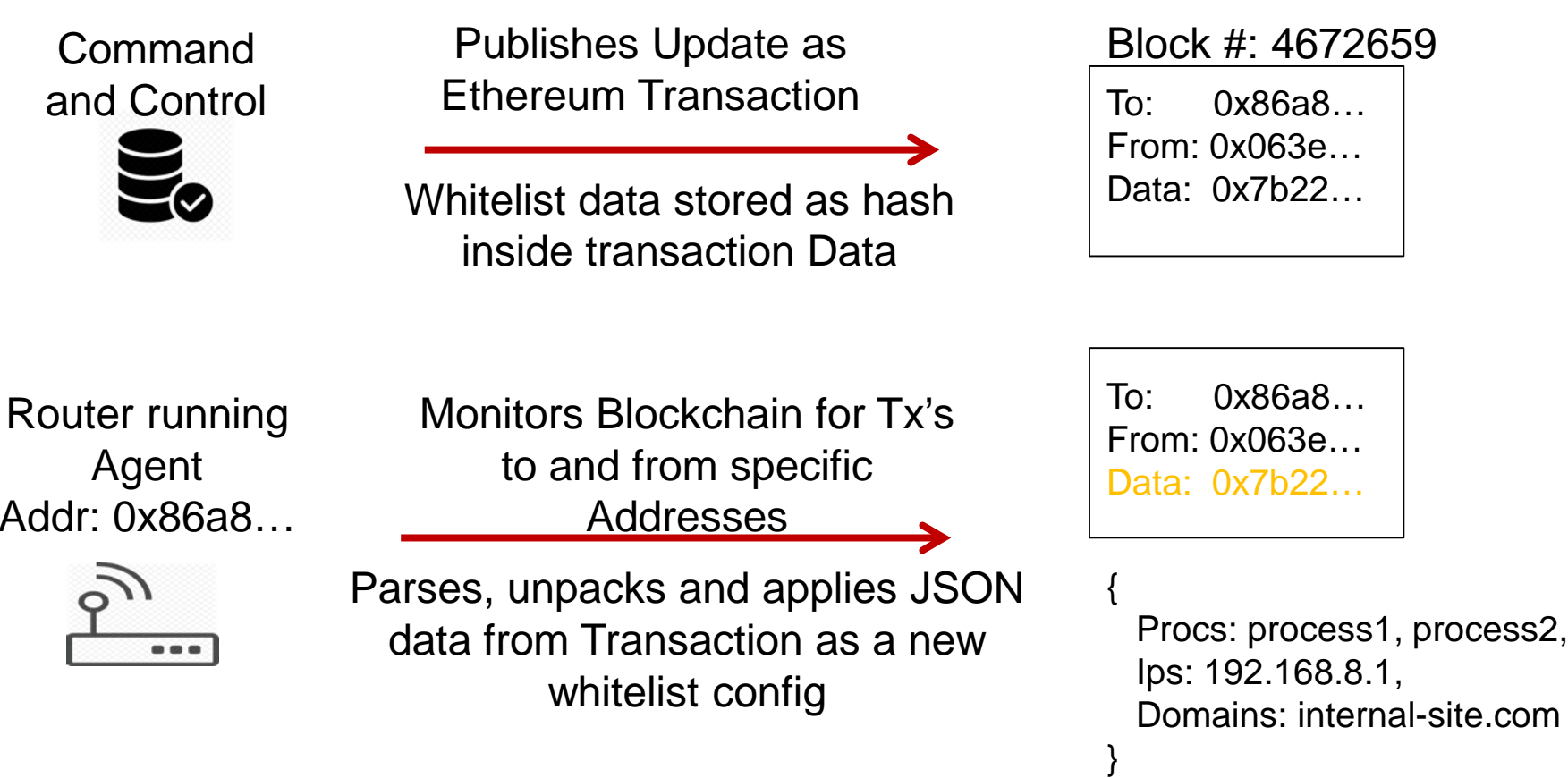
- Protocol & port # available
- Exact address
- DB info & timestamps
- Vulnerable to attack

10001	kgp
automated-tank-gauge	
I28100	SEP 29, 2017 12:11 PM
822696 AVIS LUBE 105	BIG SPRING, TX
IN-TANK INVENTORY	
TANK PRODUCT	VOLUME TC VOLUME ULLAGE HEIGHT WATER TEMP
1 WASTE OIL	385 0 1695 15.12 86.13

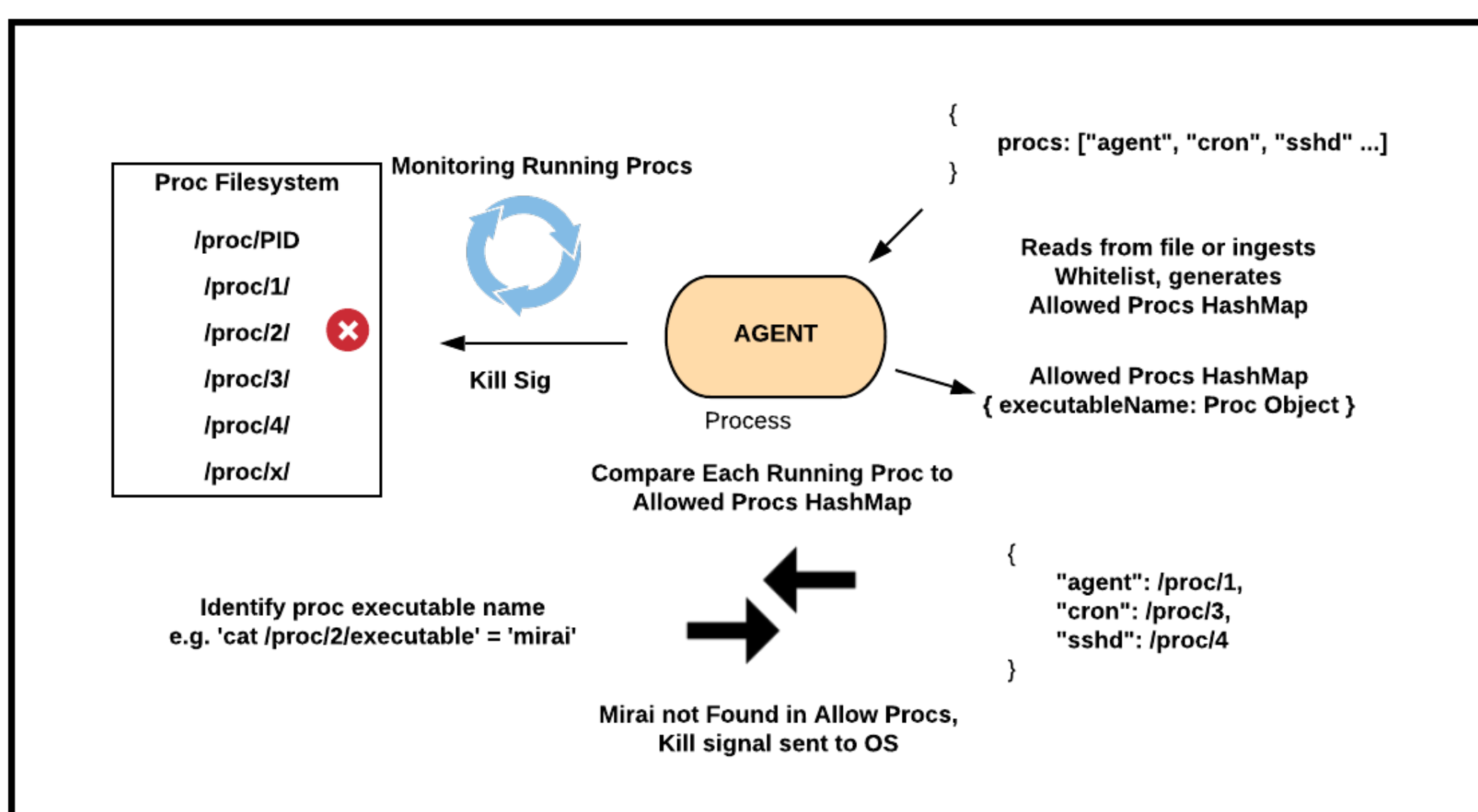
BLOCKCHAIN AS A SOLUTION

- Blockchain is a distributed ledger of transactions
- The blockchain is decentralized, no one central power exists which prevents corruption/failure
- The blockchain is immutable
- Used to distribute application whitelists
- Whitelist controls what is run on the IoT device

Ethereum Whitelist Transaction



LIGHTWEIGHT AGENT PROCESS MONITORING

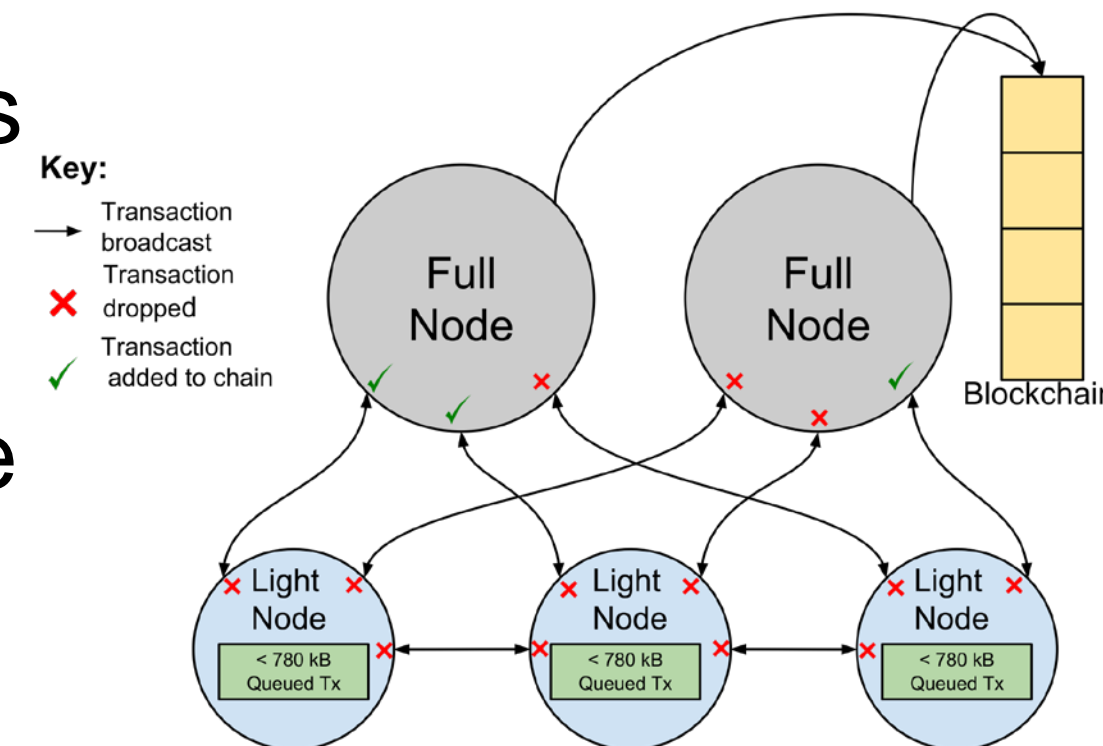


RESEARCH VISION

Develop software that helps secure industrial control systems by leveraging our Ethereum light client to address industrial IoT security challenges.

ETHEREUM LIGHT CLIENT ARCHITECTURE

- Standard Ethereum stores entire blockchain of data
- Light Client does not store any chain data



SOLUTION OVERVIEW

Lightweight Architecture

- Software enforces security policies on IoT device
- Prevent unauthorized applications from running
- Foundation for command and control
- Send/receive security updates

Machine Learning

- Intelligently whitelist/blacklist processes
- Learn from connections to whitelist IP ranges

GOING BEYOND WHITELISTS

The team has built several other proof of concepts on top of the underlying technology

Firmware & Device Updates

Device Provisioning

Ropsten Ethereum Test Network transaction Hashes:

0xa70cb53034ff4f15d567a97b90d685648d22a7633815b3e5681c87c42d3b63d7

0x39471ed242cc69da9556d71966d76b83f05b4f0a3baff5947795a45d6f0ca09

```
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