SoC Pain Points and Gaps – An Overview

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All Discussions in this Slide Deck are my own observations and conclusions.

SoC Challenges

- IP-SOC EcoSystem needs to evolve for the future
- Every SoC procures IP thru ad-hoc individualized approach
- Need *responsive*, *proactive* and *secure* IP-SoC ecosystem
- Self-sustaining with support for organic growth & scalability
- SoCs being built need to differentiate with correct IP's
- TTM for SoCs is becoming ever more critical

Some Pain Points

- Procurement Challenges
  - Finding the **best in class** IP across *PPA* and *Cost*
- Integration Challenges
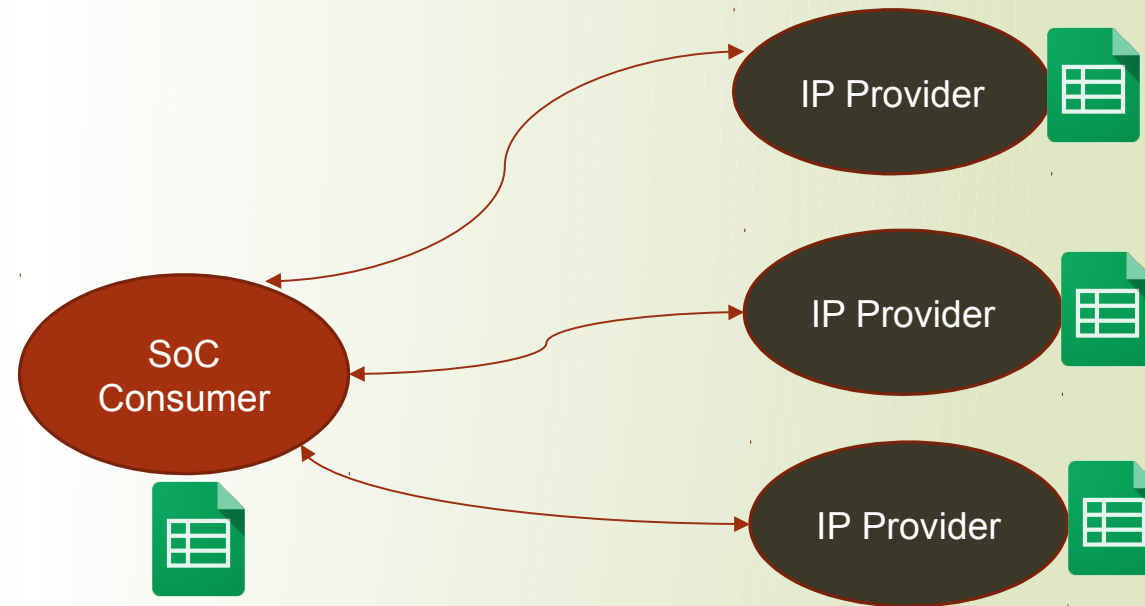 - Tools, Flows based due to version mismatches
- Validation Challenges
  - SOC environment based validation
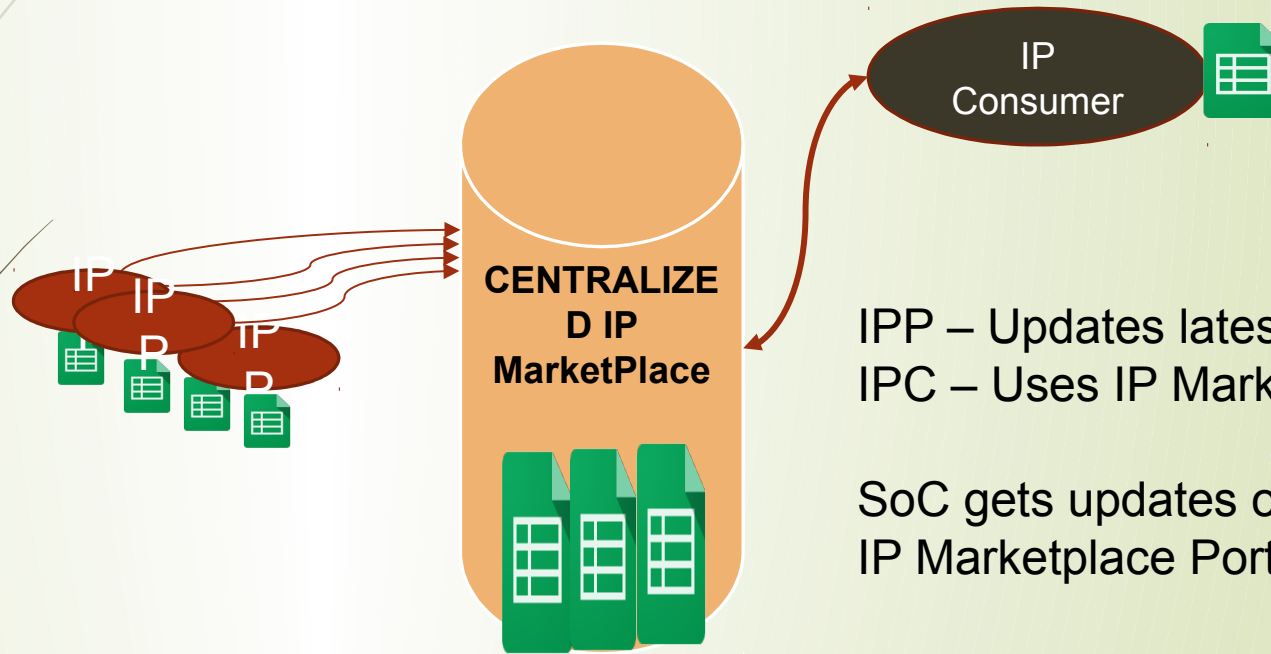- Bug Fixes and upgrades
  - No easy way for SOC to get fixes on time…no automated system

IP Procurement – *Lots of Human Glue!!*

SoC Consumer

IP Provider

IP Provider

IP Provider

Manual effort to get obvious answers which an IP MarketPlace could easily provide

IP-SoC Ecosystem with IP MarketPlace

IP Consumer

CENTRALIZED IP MarketPlace

IPP – Updates latest Versions and Specs
IPC – Uses IP MarketPlace for procuring IP

SoC gets updates on Bug fixes, newer Versions from IP Marketplace Portal

IPP gets value-add info. from IP MarketPlace for SoC next-gen needs

Secure Transaction Contracts between IPP and IPC

Current State

- SoCs conduct their IP search thru Websites, Phone Calls etc – Human Glue Effort
- IP procurement, IP BOM Management is a manual process – Error Prone!!
- IP Contracts for SOC development – Slow Process!!
- SOC issues range from (but not limited to) –
  - Specs – not able to get the exact specs matched in the IP marketplace
  - Integration challenges, IP Traceability, IP BOM Management
  - IP Bugs discovered at SOC level verification
  - Delivering the Perf but higher on Power – breaks SOC Power budget

Potential Solution

- Create a comprehensive IP MarketPlace with wide array of IPs
- Enhance IP Marketplace to a fully Autonomous entity
- Secure connection for IPP and SoC consumer thru IP Marketplace
  - Blockchain based secure transactions between IP and SoC
- Upload/download and Payment for IP controlled thru Smart Contracts!!
- Provide SoC with *detailed* IP information on IP Marketplace
- Build *Intelligence* into Marketplace for procuring best IP predictably
  - AI/ML based IP Search thru Catalog
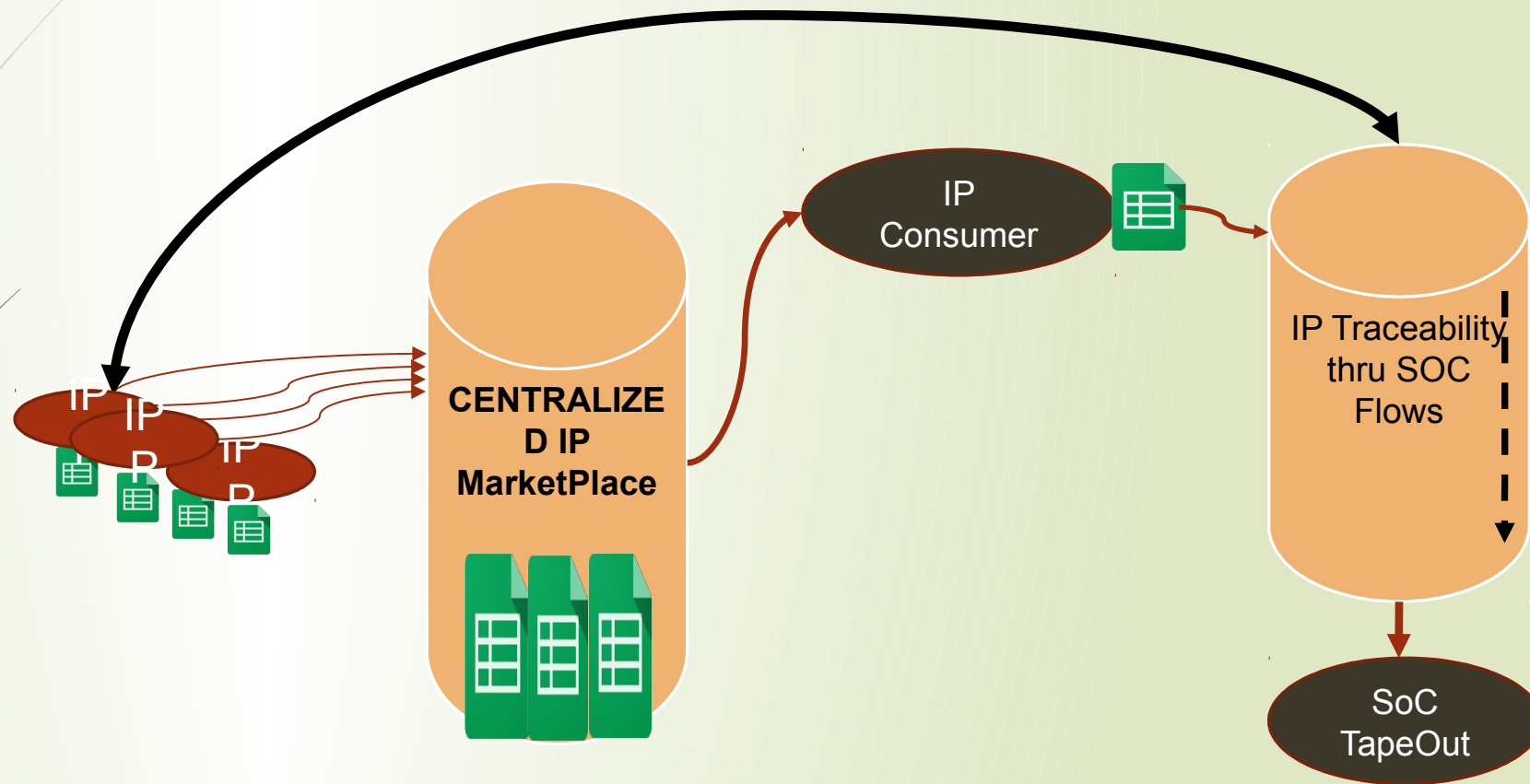 - Predictive algorithms for suggesting next gen IP's

Solution…*(contd)*
Improve SOC Integration Issues

- Create an SOC barebones Sandbox for IP in-situ validation
- IP MarketPlace collects feedback about IP Integration
- Integration Feedback dashboard per IP – *just like TripAdvisor, Yelp!!*
- Increase confidence in first time SOCs, and first time IP's

IP Traceability – *One of the pet issues*
End to End Traceability

CENTRALIZED IP MarketPlace

IP Consumer

IP Traceability thru SOC Flows

SoC TapeOut

Which IP versions were in the TapeOut Database?

THANK YOU!! for your TIME

BACKUP