

Cloud Based Remote Debug

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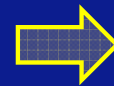
Problem Statements

1. **Insufficient boards** for Reference Validation Platform (RVP) & Customer Reference Board (CRB) allocation for **Internal & External** users (example: Early Access (EA) customers)



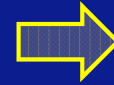
- Slow design cycles and impacting Time to Market (TTM) ~4 to 12 weeks
- Hard to reproduce issue

2. **Lack of access** to RVP/CRB for Legacy products (to support customer quality debugging or customer issues)

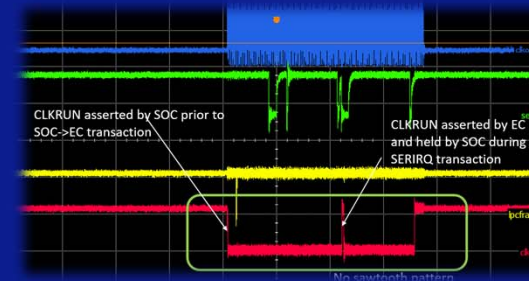


- Delay in issue resolution (~2-4 weeks)
- Travelling cost incur. (~\$5K per traveler)

3. Boards are **not updated** with the latest Basic Input / Output System (BIOS) or Software; no common repository/control in place



- Delay in issue resolution (~2-4 weeks)



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Objectives





Implement Intel Cloud Based Remote Debug:

- **Expands users' access to RVPs/CRBs thru CLOUD to**
 - Expedite design-in cycle
 - Accelerate TTM
 - Reduce cost of debug
- **Enhances productivity & user experience**
 - **Secure:** Group registration with individual OTP
 - **Fast:** Co-development; Enhanced booking system; remote probing solution for RF & BB signals
 - **Cost Effective:** Co-location; 24x7; improved utilization

Solution Overview



Four Pillars of Intel Cloud Based Remote Debug:

<h4>COMMON INFRASTRUCTURE</h4>  <ul style="list-style-type: none">• Common Environment for Internal & External• IP KVM, PDU & Network Switch• Enhanced Backbone Architecture	<h4>SECURE AUTHENTICATION</h4>  <ul style="list-style-type: none">• Dedicated Access Certificate• 6 Digit One Time Passcode (OTP)• Secure Extended DMZ (SED) Network	<h4>REMOTE DEBUG FEATURES</h4>  <ul style="list-style-type: none">• Automated Environment Setup• Remote Power Cycling• Remote Matrix Probing• Remote BIOS Debug	<h4>SCALABLE BOARD FARM</h4>  <ul style="list-style-type: none">• Wide DUTs Selection from Atom to Xeon• High Accessibility from Global• Long Term Solution for Board Shortage
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One stop Solution to customers



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Cloud Based Remote Debug Architecture Overview

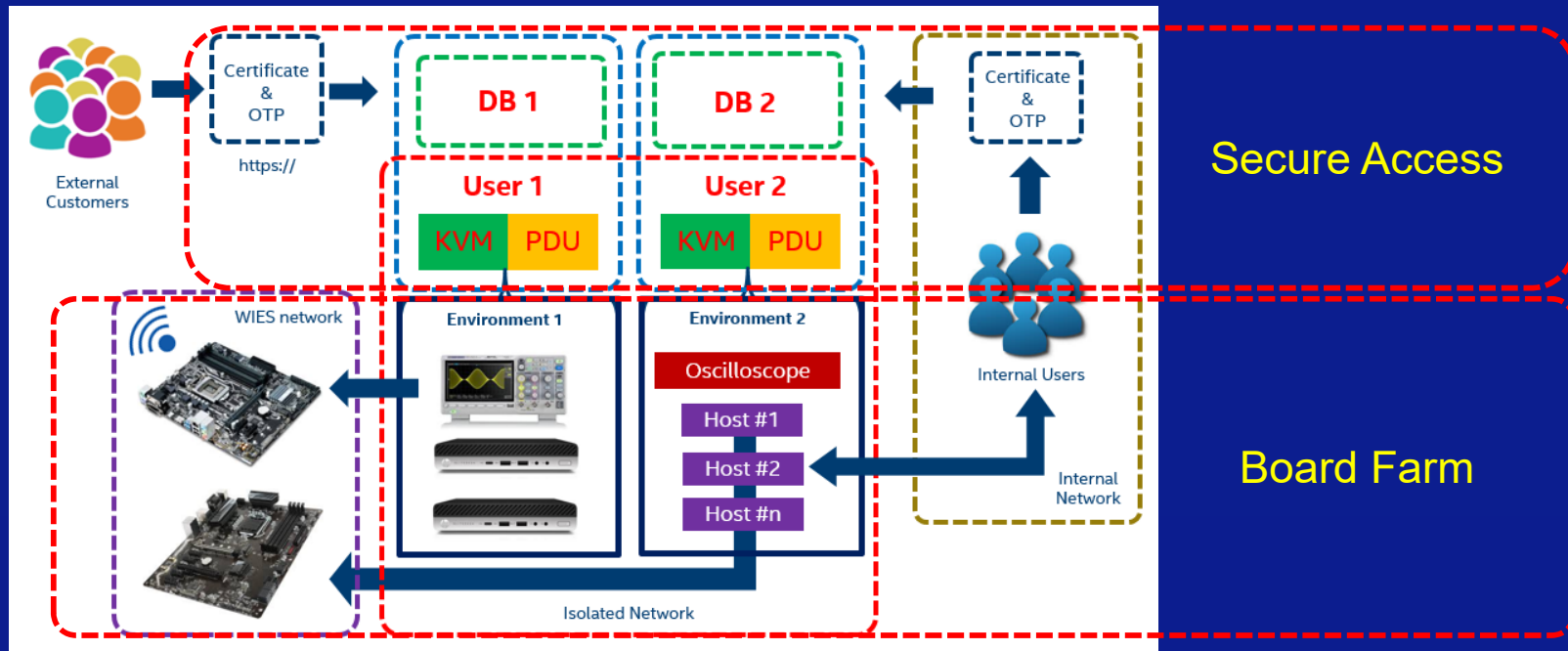


Diagram 1: Cloud Based Remote Debug Architecture Overview

Cloud Based Remote Debug Architecture Overview

- Secure Access:
 - Online certificate
 - Individual login credential
 - Secure Virtual Private Network (VPN)
 - One-Time-Passcode (OTP)



Cloud Based Remote Debug Architecture Overview

- Board Farm:
 - Asset access & control management system
 - Platform scheduling system
 - Auto OS provisioning solution
 - Extensive remote debug features



Impact of Cloud Based Remote Debug

Ideal development environment:

1. Secure debug environment
2. Self-operate
3. 24x7 validation operation
4. Remote accessible
5. Fast access, anytime, anywhere

Improved Time-to-Market!



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Summary

- Cloud Based Remote Debug has helped to transform validation operation in Intel by:
 - Reduced 20% cost in reference board purchase
 - Improved 3 weeks early customer engagement
 - Improved 90% design infra setup time in lab
 - Enabled 24x7 validation operation
- Received overwhelming response from users

Acknowledgements

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