

# THREAD GROUP

Thread Certification Overview

V8

2024-04-17



# Thread Certification Intro – Why?

Formal validation of :

- The product's conformance to the Thread specification

- The product's interoperability with leading Thread reference implementations

Acquire a product license for intellectual property rights (IPR) to Thread technology

Acquire license to use the Thread Group certification logo with the product

Promotion of the certified product via Thread Group PR and social media

Listing of the certified product on the Thread Group website



# Thread Certification Intro - Summary

## Built on a Robust Foundation of Thread Network Protocol Testing

- Involves a collection of rigorous specification conformance tests, each run against a multi-vendor interoperability test topology - comprised of market-leading Thread reference devices
- Uses an automated test environment comprised of Thread test harness software controlling low-cost, commercially-available Thread reference hardware
- Physical certification testing is carried out by global, 3rd-party network of Authorized Test Labs

## Options for Inheriting Certification (non-testing) When Thread System Functionality is Unchanged

- Derivative product(s) may inherit the certification of a parent product
- Modules may inherit stack certification
- End products may inherit component certification



# Thread Certification Intro - Policy

## Thread Certification is Valid for the Lifetime of the Product

- Company must maintain active Thread Group membership
- No changes may be made to the Thread functionality

## Certified Products Must be Re-certified if any Changes Made to Thread Functionality



# Thread Certification Intro - Logos



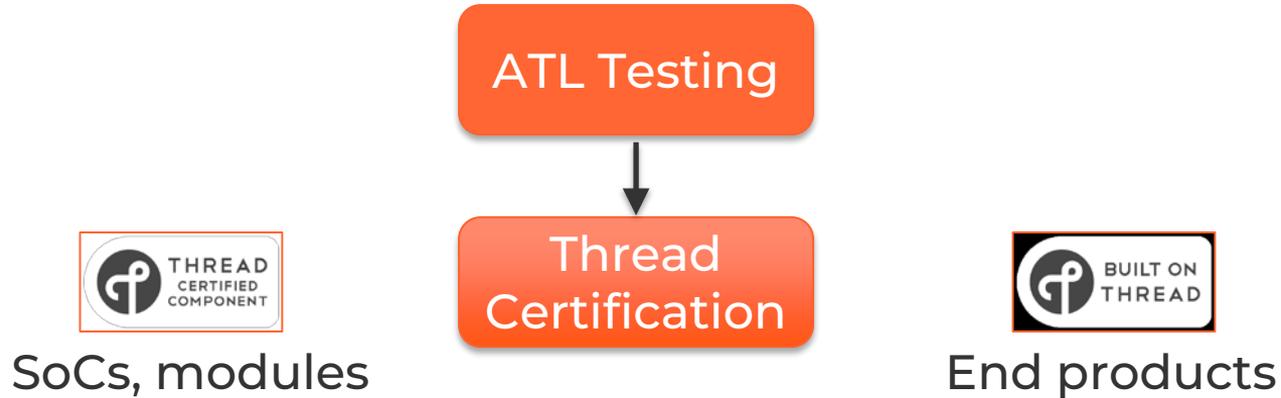
SoCs, modules



End products

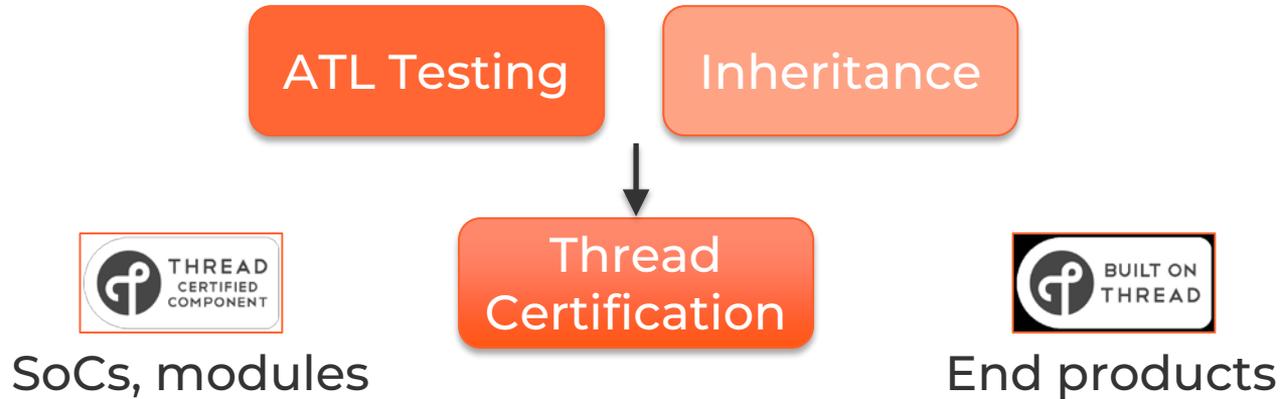


# Thread Certification Intro – ATL Testing Approach



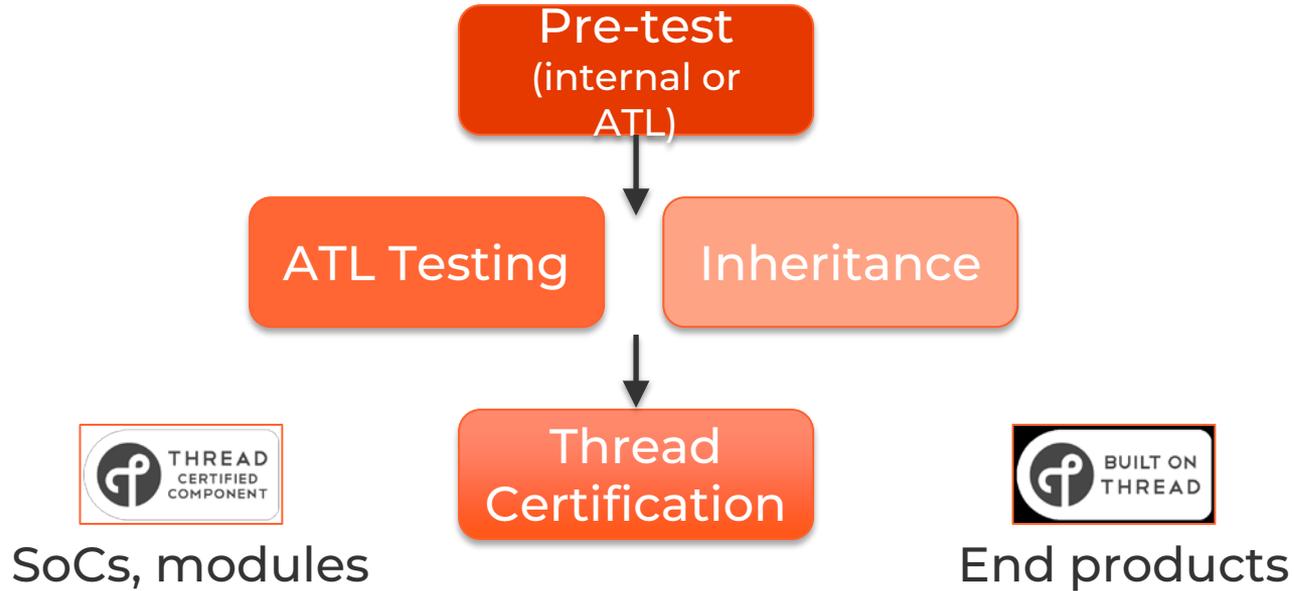


# Thread Certification Intro – Inheritance Approach





# Thread Certification Intro – Pre-testing





# Thread Test Environment Overview

- Automated
- Commercial Quality
- Accessible
- Affordable
- Customizable
- Extendable



## Thread Test Environment – Automated, Commercial Quality

### Thread Test Harness Software

- Developed by a leading industry supplier; maintained in partnership with Thread Group
- Fully automatic test bed control
- Fully automatic results analysis
- Manual and automatic Device Under Test (DUT) control options

### Thread Test Bed

- Thread reference devices are commercial hardware from major vendors



## Thread Test Environment – Accessible, Affordable

### Accessible and Affordable for Thread Group Members

- Thread Test Harness software is free to Contributors and Sponsors, available for purchase by Implementers
  - Includes ongoing maintenance updates
- Thread test bed equipment available for member purchase
  - Complete Thread Authorized Test Lab environment can be replicated for ~USD 5K



## Thread Test Environment – Customizable, Extendable

### Customizable for Each Member's Needs

- Configure your device to run automatically under test harness control
- Customize the test bed reference device portfolio – add your device as a reference device
- Create custom tests for internal needs, include them in the regression suite

### Extendable

- Set up API control of the test harness for unattended, automated regression runs
- The test harness software can be the cornerstone of a standalone build test environment or interfaced with an existing system



## Certification by ATL Testing



# Thread Product Certification – ATL Testing

Carried out by 3<sup>rd</sup> party Authorized Test Lab (ATL) Network

Use of Thread Test Environment is Required

## Timeline

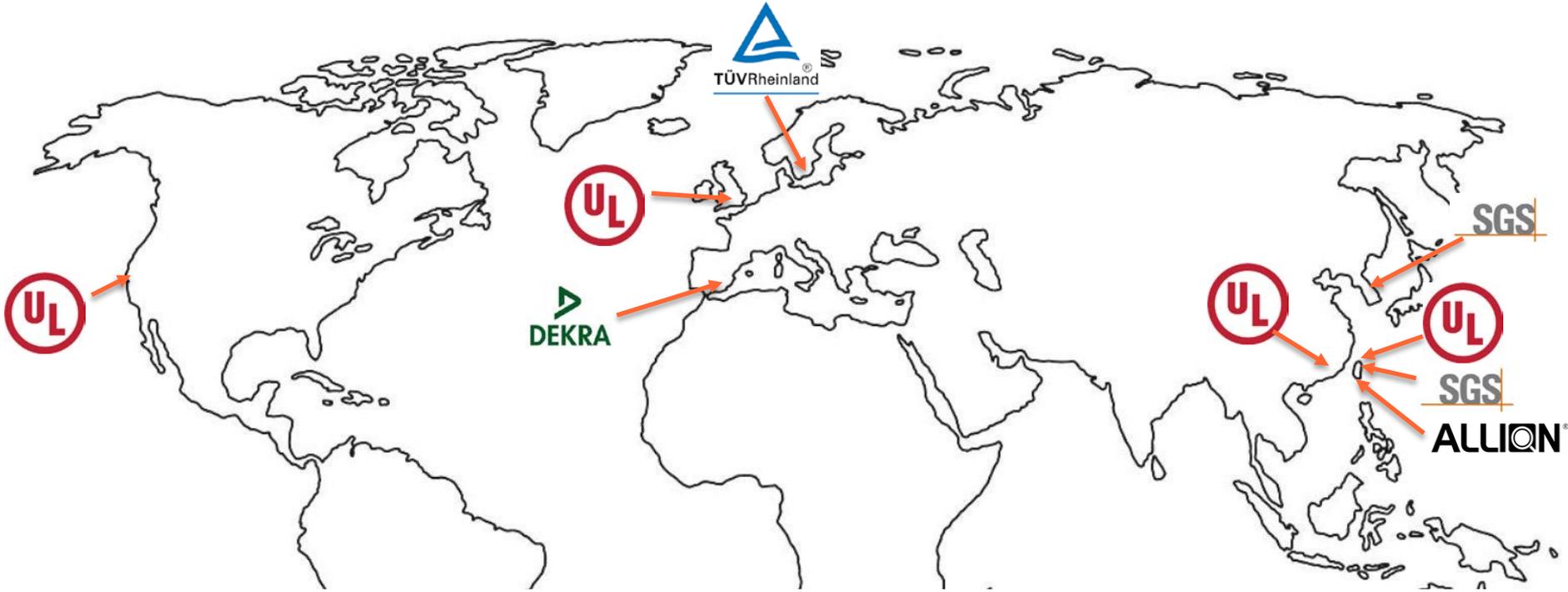
- Typically takes 1-3 weeks for testing, plus up to one week for results review
- More testing involved for more complex devices
  - Approximately 50 tests for Thread V1.3.0 end nodes, 175 tests for Thread V1.3.0 Border Routers

## Certification Costs

- Test costs set by Authorized Test Labs
- Thread Group charges separate, one-time administration fee per product



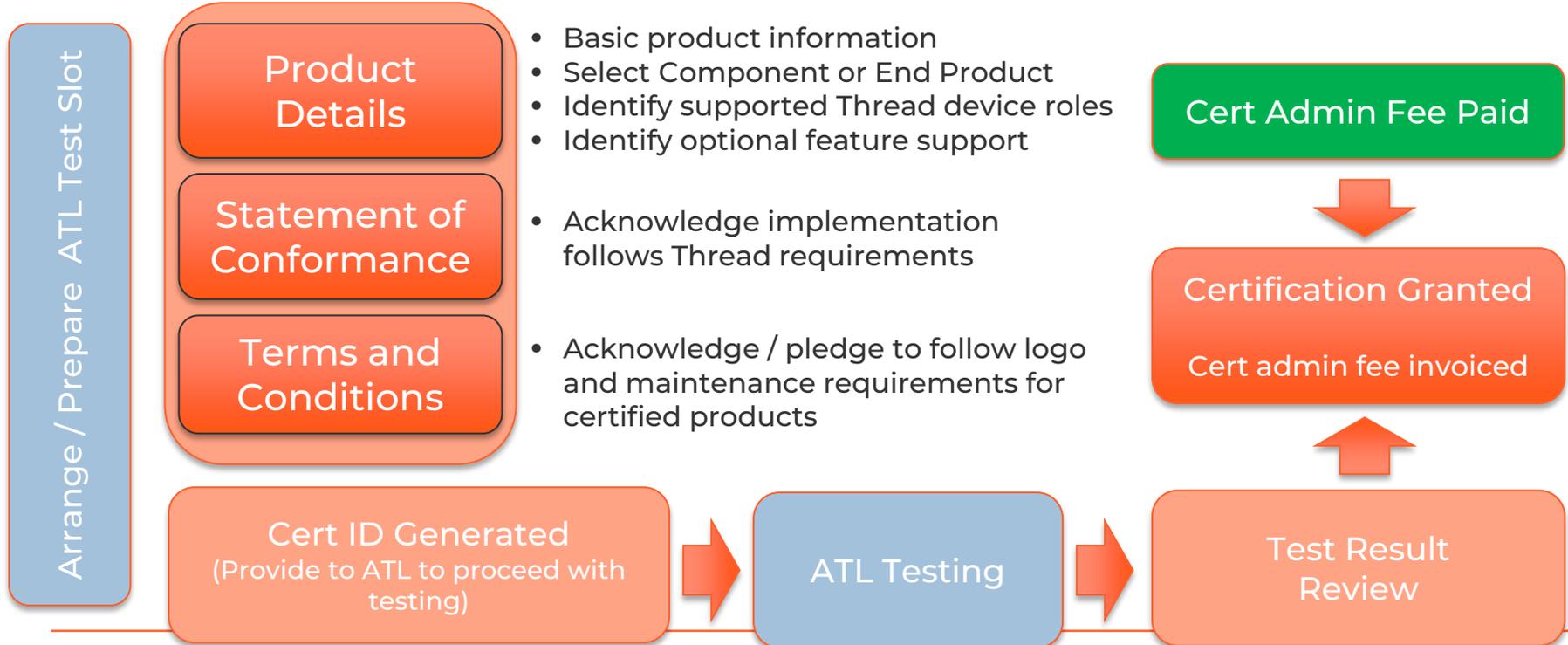
# Thread Authorized Test Lab Network





# Certification Flow (via ATL Testing)

## Certification Application





## Certification by Inheritance



# Thread Product Certification - Inheritance

## Paper Transaction - Carried Out Directly Between Thread Group and Member

- Member needs to understand the certification state of the parent product
- Document the product similarity/change details in the certification application

## Timeline

- Typically takes one week (simple scenario) to one month (complex scenario)

## Certification Cost

- Thread Group charges one-time administration fee per product application



# Certification Inheritance Scenarios

## 1) Derivative Products – Typically the Simplest Scenario

- Variations of a certified product – typically within a member’s own product family
- Non-Thread functional changes, cosmetic changes, etc.

## 2) Modules

- Use of a certified “system” (stack/chip combination) within a module

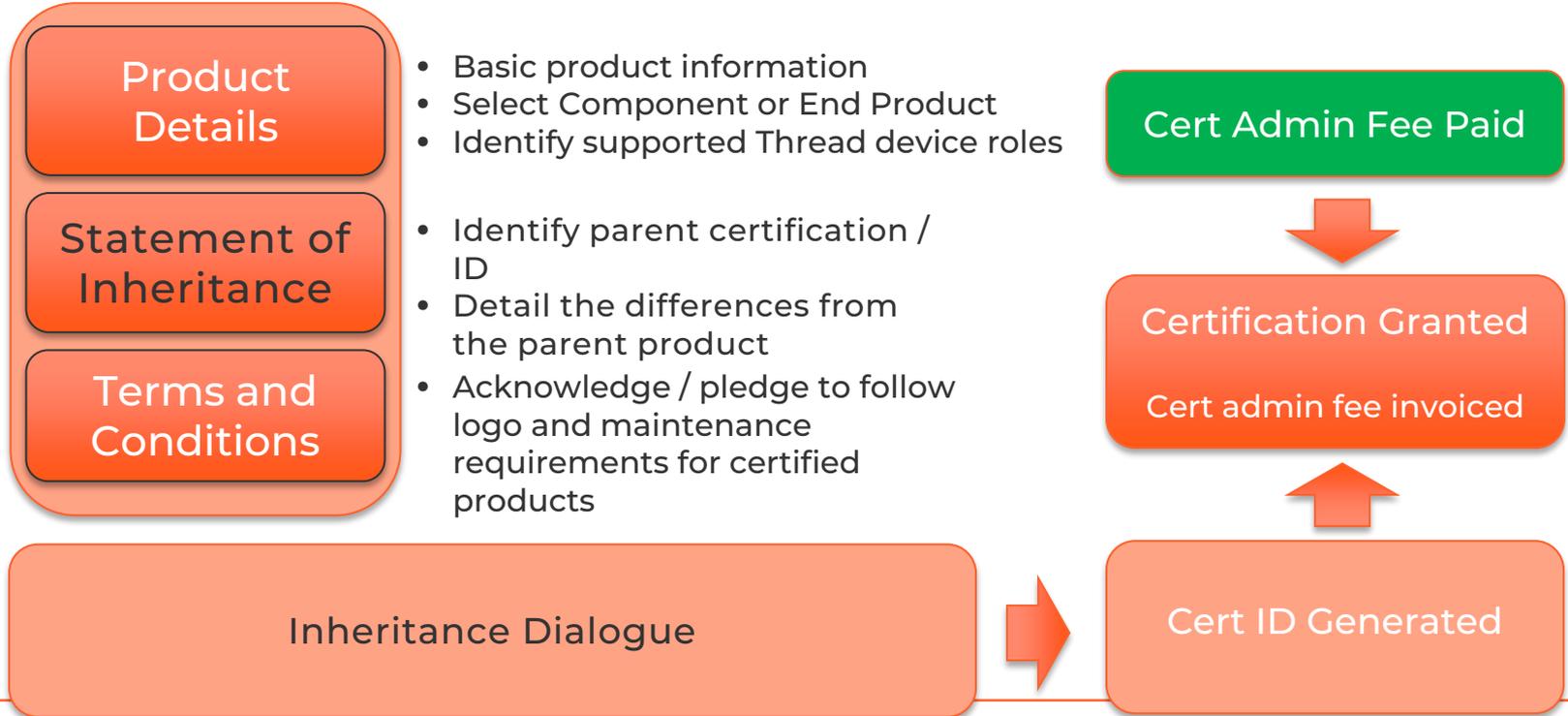
## 3) End Products – The Most Complex Scenario

- Use of a certified “system” (hardware/Thread stack combination) within an end product
- Feasibility is dependent on specific vendor stack deployment approach
- May require extensive supporting technical information



# Certification Flow (via Inheritance)

## Certification Application





## Thread Certification Access and Fees



## Membership Access to Thread Certification

	Sponsor	Contributor	Implementer
Inheritance	Yes	Yes	Yes
ATL Testing / Pretesting	Yes	Yes	No
Internal Pretesting	Yes	Yes	Yes
Test Bed	\$	\$	\$
Test Harness Software	Free	Free	\$

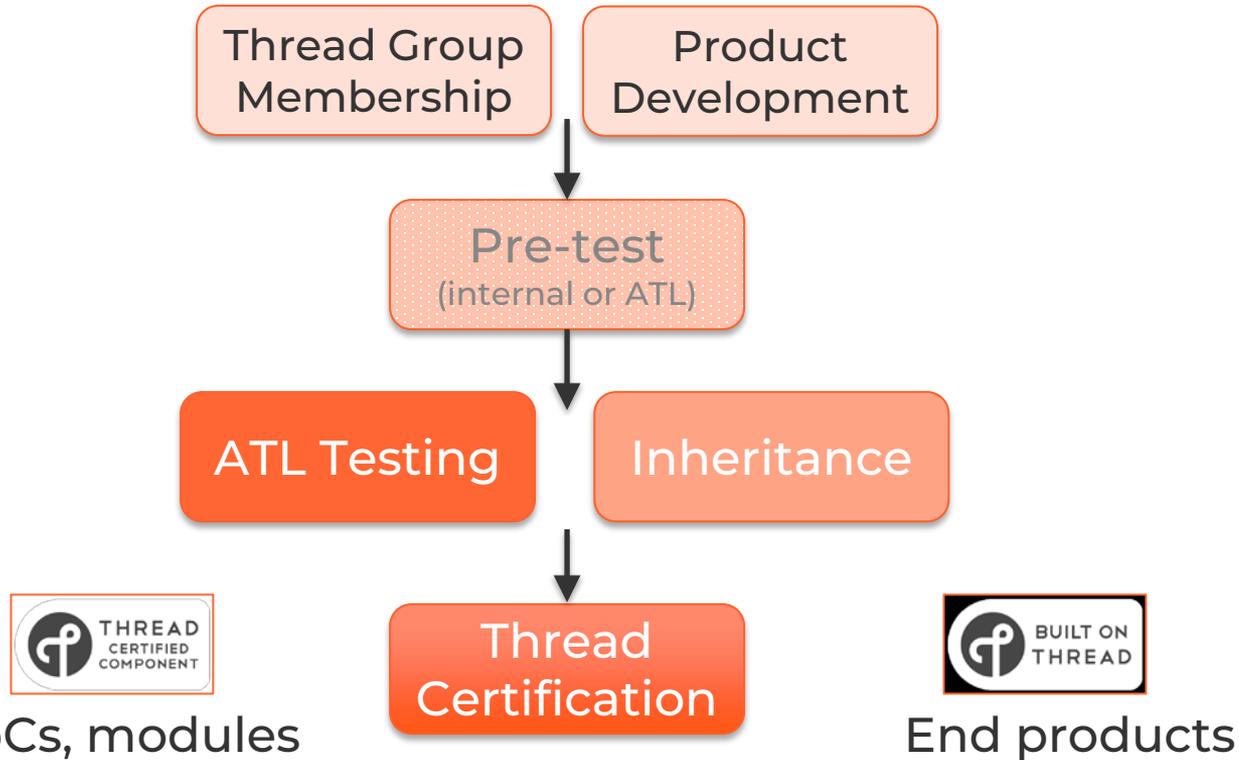


# Thread Certification Fees

	Contributor / Sponsor			Implementer	Associate
Certification type (Product type)	ATL Testing (Component)	ATL Testing (End Product)	Inheritance (any)	Inheritance (any)	Inheritance (End Product)
Test fee (per product)	ATL fee	ATL fee	n/a	n/a	n/a
Thread Group Cert fee (new product/features)	\$1250 ea	\$2500 ea	\$1000 ea	\$1500 ea	\$2000 ea
Thread Group Cert fee (maintenance updates)	\$0				



# The Path to Thread Certification



THREAD GROUP

Thank You