



The bridge to possible

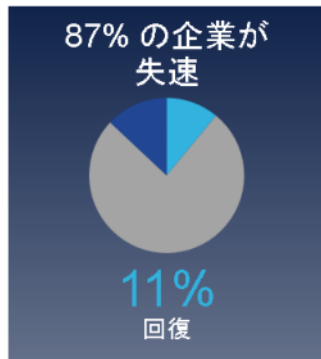
# 事業戦略と知財・標準化戦略の関係性

4 August 2022

Miya Kohno, Cisco Systems

# デジタル時代 - A VUCA World

- **V**olatile 変化が非常に早い
- **U**ncertain 未来を予測することは困難
- **C**omplex 複雑化した世界
- **A**mbiguous 問題も解決策も明確ではない



Disrupt, or be disrupted !!

「自らdisruptしなければ、あっという間に  
disruptされる立場になる。」

Source: Global Center for Digital Business Transformation, 2017

# どのようにDisruptするか : Innovation Speed and Scale



1. Build  
自社開発する



2. Buy  
買収する



3. Partner  
提携する



4. Invest  
投資する



5. Co-Develop  
共同開発する

# Ciscoの戦略 : Open Standard, Open Source, Open Community



- サイロ化、オーバーラップ・過不足、実態との乖離
- Open Standard, Open Source, Open Communityが重要

# 1. Build – 自社開発する (2/3)

## Ciscoの戦略：Fellow, CPOL (Cisco Patent Online), Patentathon

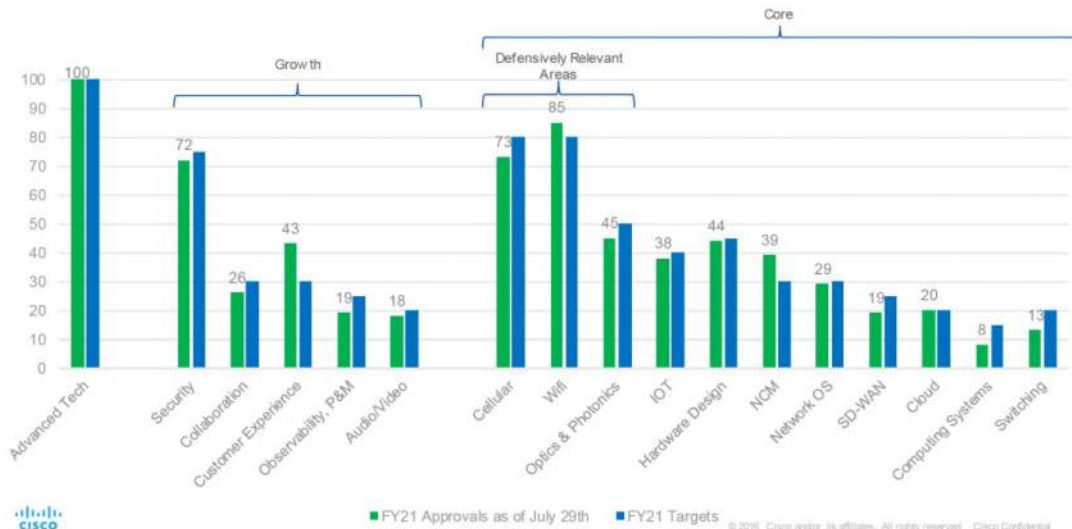


### Welcome to the Cisco Fellow and Distinguished Engineer Community

The Cisco Fellow and Distinguished Engineer Community site supports our FDE/Fellow program, with resources to help keep our leading technical talent industry. Information about the DE/Fellow nomination process, announcements and other information pertinent to this community can be found and shared.

- Cisco Fellow Community
- CPOL, Patentathon などの奨励

### Actual vs Target approvals FY21



# 1. Build – 自社開発する (3/3)

## 最近の事例: SRv6 (Segment Routing IPv6)

### SRv6 - 標準化動向

- **RFC 8402** \* – Proposed Standard
  - SR-MPLS with MPLS dataplane and Label SID's
  - SRv6 with SRH and SRv6 SID's
- **RFC 8754** – Proposed Standard
  - SRv6 DataPlane: SRH and SRv6 SID
- **RFC 8986** – Proposed Standard
  - Network Programming (END, END.X, END.DX/DT, H.Encaps)
- **RFC 9252** – Proposed Standard
  - BGP Overlay Service Based on SRv6
- **RFC 9259** – Proposed Standard
  - OAM in SRv6
- もう間もなくRFC
  - SR Policy (draft-ietf-spring-segment-routing-policy-22) \*
  - IS-IS extension (draft-ietf-lsr-isis-srv6-extensions-18)
  - BGP-LS extension (draft-ietf-idr-bgp-ls-srv6-ext-09)

### 世界におけるdeployment状況

商用展開開始から3年！ (2019 – 2022)

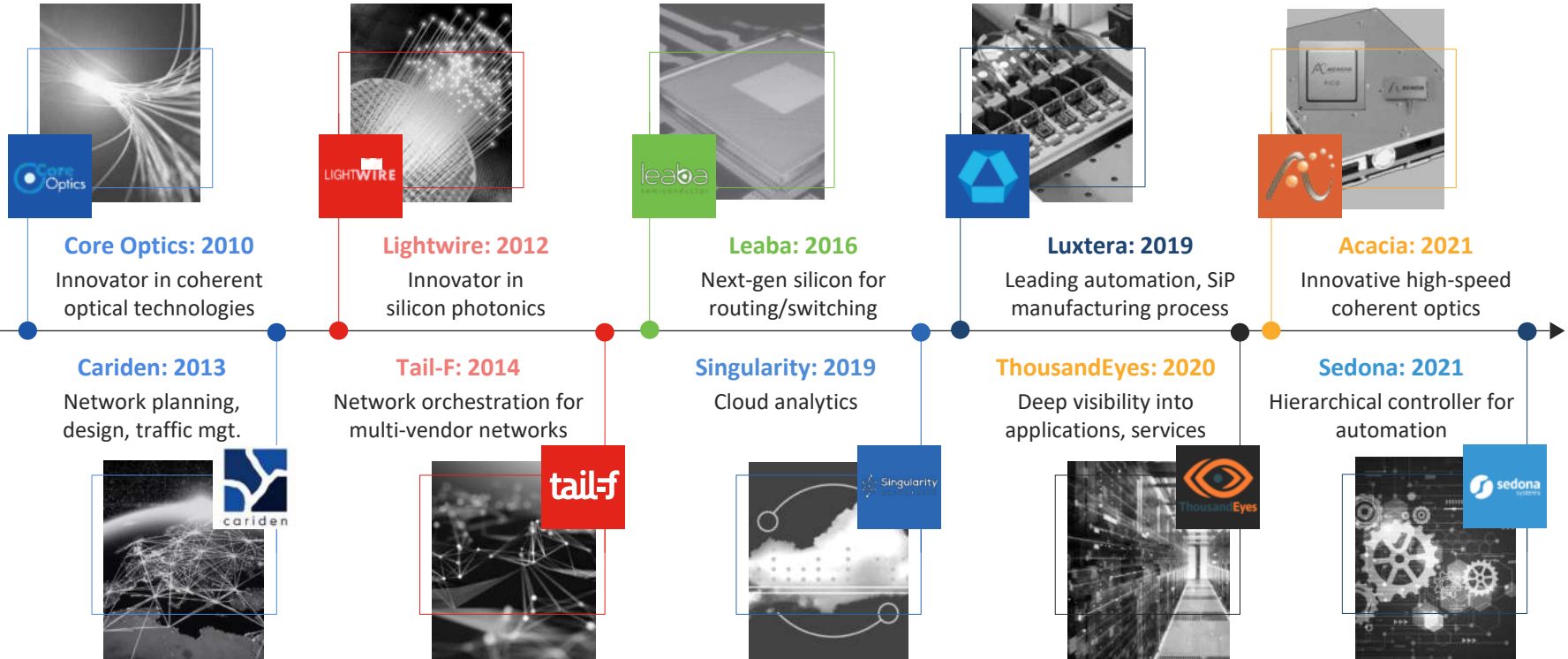
- 加入者数1億超え
- 公開された14件を含み、100件以上のdeployment
- 多様なマーケット (Web, SP, Data Center, Enterprise)
- 多様な地域 (アジア、ヨーロッパ、アメリカ)



\* SR-MPLS/SRv6 共通



## 2. Buy – 買収する



# 3. Partner – 提携する

最近の事例：Open Roaming (異地域、異アクセス間でもローミングを可能にする技術)  
Cisco社で開発していたOpen Roaming技術を、エコシステム拡大のために、WBAに移管

**WBA OpenRoaming**

 **OPENROAMING™**  
WIRELESS BROADBAND ALLIANCE


The Framework to Support WBA's Wi-Fi Federation



Source: WBA  
Author(s): WBA Members  
Issue date: June 2020  
Release: 1.1  
Document status: Final




 **WIRELESS BROADBAND ALLIANCE**  
CHANGING NEXT WIRELESS EXPERIENCE



**STANDARDS & IMPLEMENTATION STATUS**

 **WIRELESS BROADBAND ALLIANCE**







Components	Release 1 (Available)	Release 2 (Work in Progress)
Cybersecurity Service	<ul style="list-style-type: none"><li>PKI Certificate Issuance to Wi-Fi Networks and Identity Providers</li><li>RadSec-TLS support</li></ul>	<ul style="list-style-type: none"><li>Global Database v2 (location, long tail)</li><li>Advanced onboarding models IoT</li></ul>
Cloud Federation	<ul style="list-style-type: none"><li>Settled and settlement free (Static Routing and Dynamic Discovery)</li><li>WBA Unique Organization Identifier (WBAID)</li></ul>	<ul style="list-style-type: none"><li>Membership service (Analytics and reporting)</li><li>Advanced network QoS, assurance, SLA</li></ul>
Network Automation	<ul style="list-style-type: none"><li>Roaming Consortium (RCOI) Framework &amp; Policy Provisioning</li><li>Legal Framework / Common Terms of Service</li></ul>	<ul style="list-style-type: none"><li>Automation and enforcement techniques</li><li>Advance profile management and interfaces</li></ul>







Latest deployments











Members involved (35+)







non-exhaustive

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<https://www.cisco.com/c/en/us/solutions/enterprise-networks/802-11ax-solution/openroaming.html>  
<https://wballiance.com/openroaming/>



# (ご参考) OpenRoaming for Private 5G



## PROJECT DESCRIPTION

### Trends and Opportunities

Wi-Fi is an incumbent technology in enterprises, and private 5G networks will be deployed along with Wi-Fi to meet wireless communication needs by leveraging capabilities and resources across both the networks.

OpenRoaming™ is set to revolutionize the adoption of roaming. Importantly, whereas earlier federations have focused on a single vertical, the real innovation in WBA's OpenRoaming federation is not that the system is built on a cloud foundation, although that helps in scaling, rather it's in the definition of a flexible policy framework based on Roaming Consortium Identifiers (RCOIs).

Private 5G network deployments are expected to ramp up significantly over the next few years in sectors like manufacturing (industrial IoT), enterprises, hospitality, healthcare, transportation etc.

### Business Benefits

It is noted GSMA IR.88 describes the use of DNS NAPTR Queries by a Diameter Edge Agent (DEA) for server discovery for a particular realm of an in-bound user and GSMA has already updated their IR.67 specifications to allow discovery

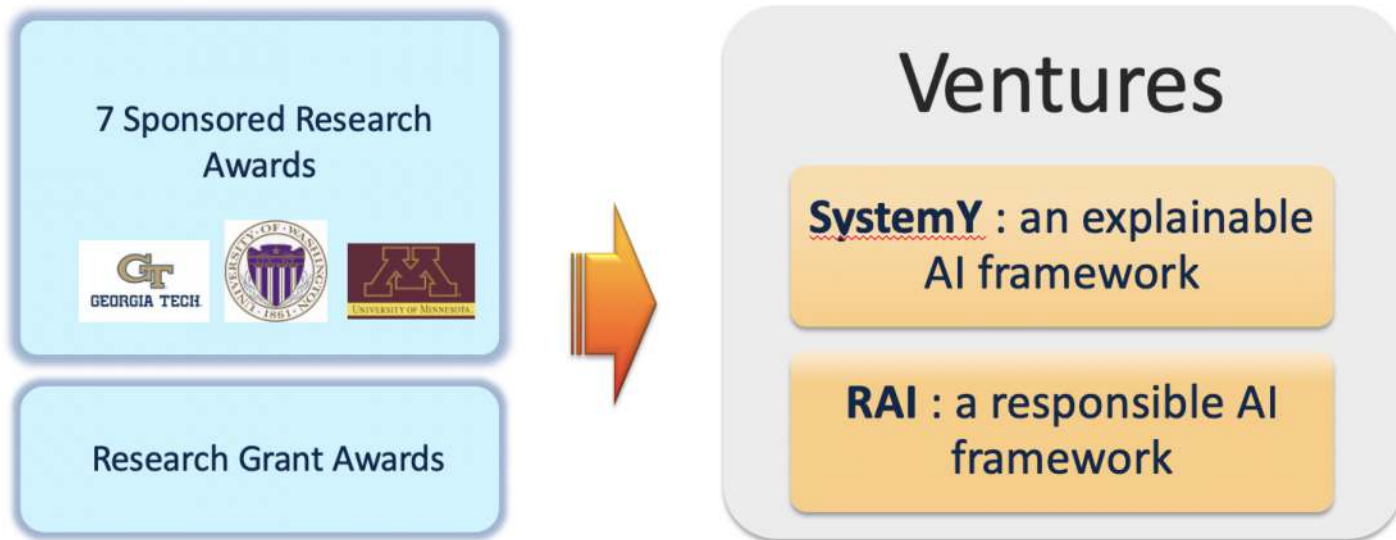
## LEADING PARTICIPANTS



# 4. Invest – 投資する

最近の事例：AI Ethics

## Cisco Research and Ethics



# 5. Co-develop – 共同開発する

## 最近の事例：Partner Innovation Challenge



Partner

### Partner Innovation Challenge: Making Everything Possible

Alex Pujols

We live in a programmable world where technology innovation makes just about anything possible.

This is the fourth year we've hosted Cisco's Partner Innovation Challenge, and it's just getting better every year. Since the challenge launched in 2018, we've awarded more than \$2 million USD in prize money. Those awards are incredibly well earned. We've had some amazing submissions, and this year partners really raised the bar in terms of innovation and demonstrating business outcomes.



# Purpose driven innovation

## Purpose

Vision and Mission



## Cisco's Purpose

Power and inclusive future for all

“Purpose” を実現しようと切磋琢磨することが、継続的イノベーション力の源泉である

# Appendix: 多様性 - Diversity

## VUCA World

- 必ずしも、「良い技術」が普及するとは限らない
- “Chasm”を越えたイノベーションだけが普及する

## 「必要多様性」

- 複雑多様な環境に対応するには、自らが同じように複雑多様である必要がある。
- 多様性のみが、多様性に対処できる

(R. Ashby)



### Requisite variety and its implications for the control of complex systems

by W. Ross ASHBY,

*Director of Research, Barnwood House (Gloucester)*

Recent work on the fundamental processes of regulation in biology (Ashby, 1956) has shown the importance of a certain quantitative relation called the law of requisite variety. After this relation had been found, we appreciated that it was related to a theorem in a world far removed from the biological—that of Shannon on the quantity of noise or error that could be removed through a correction-channel (Shannon and Weaver, 1949; theorem 10). In this paper I propose to show the relationship between the two theorems, and to indicate something of their implications for regulation, in the cybernetic sense, when the system to be regulated is extremely complex.

Since the law of requisite variety uses concepts more primitive than those used by entropy, I will start by giving an account of that law.

<http://pcp.vub.ac.be/Books/AshbyReqVar.pdf>

# Appendix: 公平性 - FRAND

## FRAND:

Fair, Resonable and Non-Discriminatory  
公平、合理的、被差別的

## Fair Standards Alliance:

- 本拠地ベルギー
- 次世代のハイテク製品の革新に必要な必須特許へのアクセスに関して、より現代的でオープン、かつ協調的なアプローチを提唱
- 「SEP所有者は貢献した価値に応じた報酬を受ける権利があり、それ以上でも以下でもない」

## About the Fair Standards Alliance

The Fair Standards Alliance is a not for profit association whose goal is to promote a number of key principles concerning the licensing of Standard Essential Patents (SEPs) that are subject to a voluntary commitment to provide licenses on Fair, Reasonable and Non-Discriminatory (FRAND) terms.

## Members



<https://fair-standards.org>

現在は47社が参加。

日本からも、Toyota様, Honda様, Denso様, Hitachi様などが参加。





The bridge to possible