

Community Engagement and Contribution ~ Leadership for ONAP Frankfurt Release ~

富士通株式会社 / Open Program Hub

福田 利道

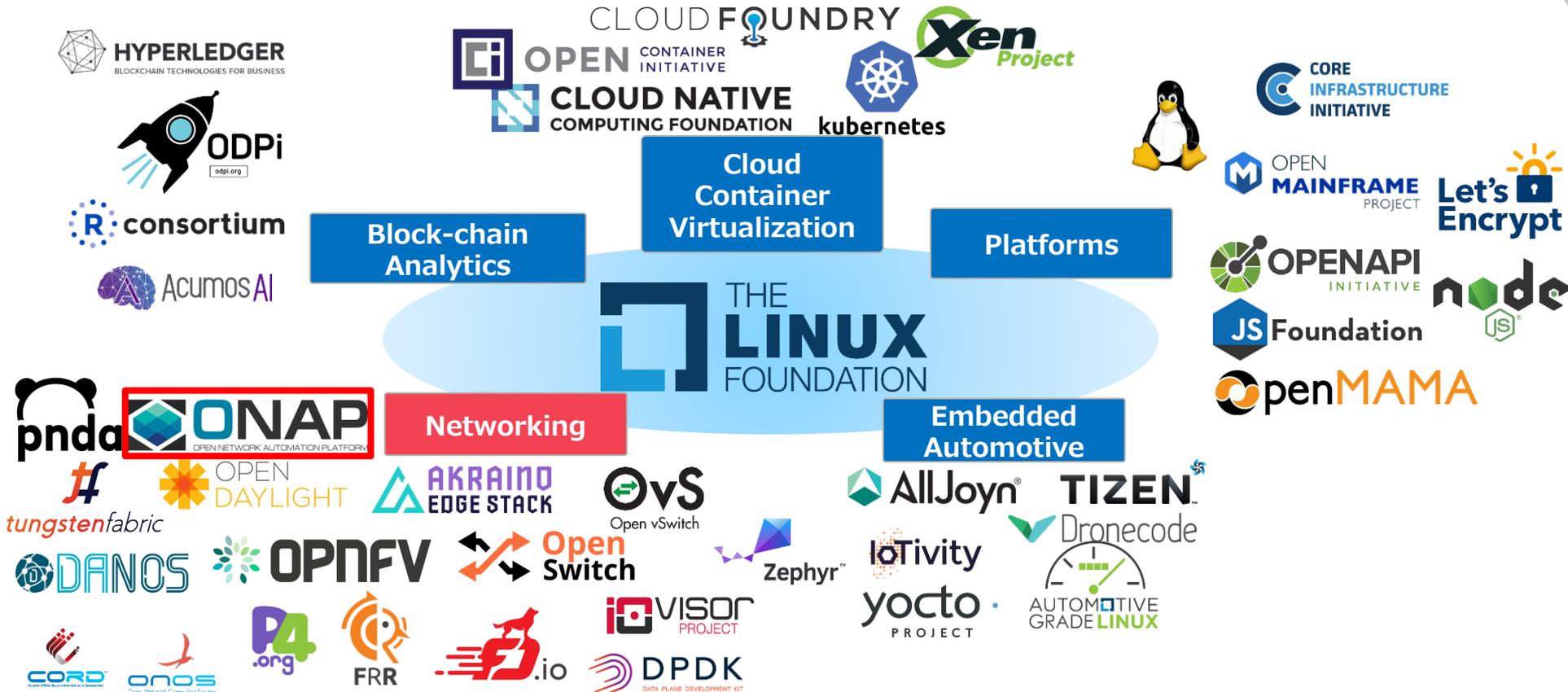
宮下 卓也

Raghavan Subramanian

Xin Miao

Open Networking ~ ONAP Overview

Linux Foundation Project Landscape



■ Jan 2018: LF Networking発足

- LinuxがNetworking領域の技術を加速させるため、LFNを発足。主要プロジェクトに注力し、プロジェクト間でのシナジーを発揮させる



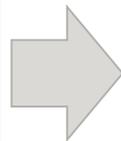
オープンネットワークコミュニティでの活動の狙い

ネットワーク領域でのオープンコミュニティが活発化。情勢が決定づいていない今から現場に入り込み、新しいビジネスのスタイルを企画、築き上げていく。

ONAPの生い立ちと位置づけ



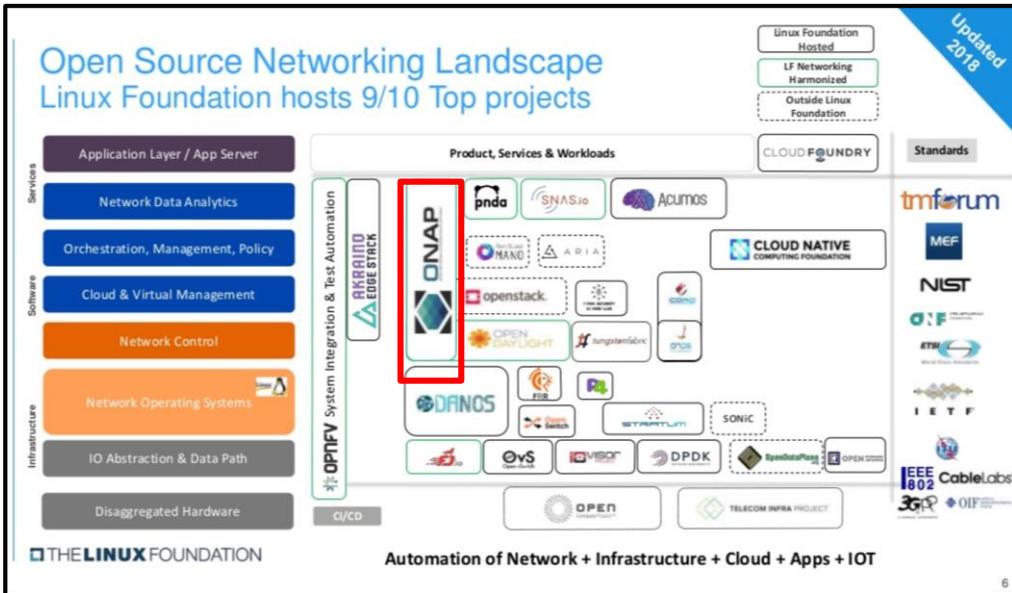
- 商用実績のあるといわれるLSOプラットフォームであるECOMPをLinux Foundationの下でオープンソース化
- AT&Tは850万行をオープンソースとしてコミュニティに寄贈



- China Telecom, Huaweiが推進していた他のオープンソース・オーケストレータのプロジェクト (OPEN-O)をマージ
- ONAPプロジェクトへ加入済み、加入予定を含めると世界約70%のモバイルユーザ(40億人)にリーチ

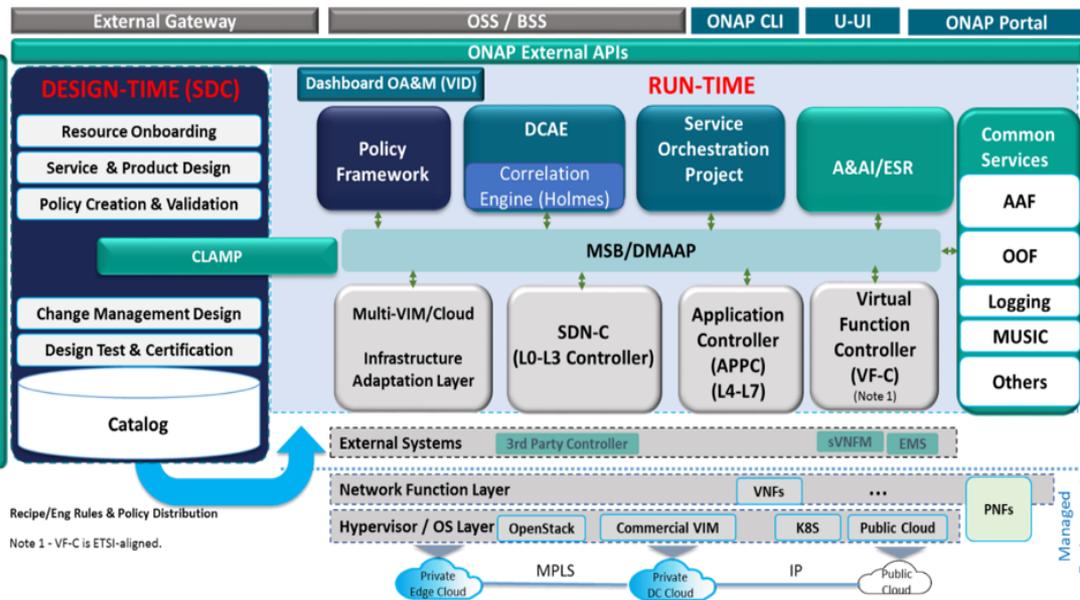


- Network Service Orchestrator
 - MEF/TMFの標準インターフェースによるインターオペラビリティ
 - 5G/NW Slicing/Cross Layer, Cross Domain E2E
 - エッジ/AI連携



ONAP Architecture and Overview

- **特徴1** : デザインファンクション(Design Time)とオペレーションファンクション(Run time)に分かれた構成。Design Timeでネットワークサービスを設計し、Run Time側にデプロイしてネットワークを運用
- **特徴2**: SDN, NFVのオーケストレーションを行い、サービスデプロイメントまでを自動化
- **特徴3**: Closed Loop Automation Management Platformにより、イベント収集・判断・対処をClosed-Loopで自動化。自動化ポリシーもDesign Timeで設計可能



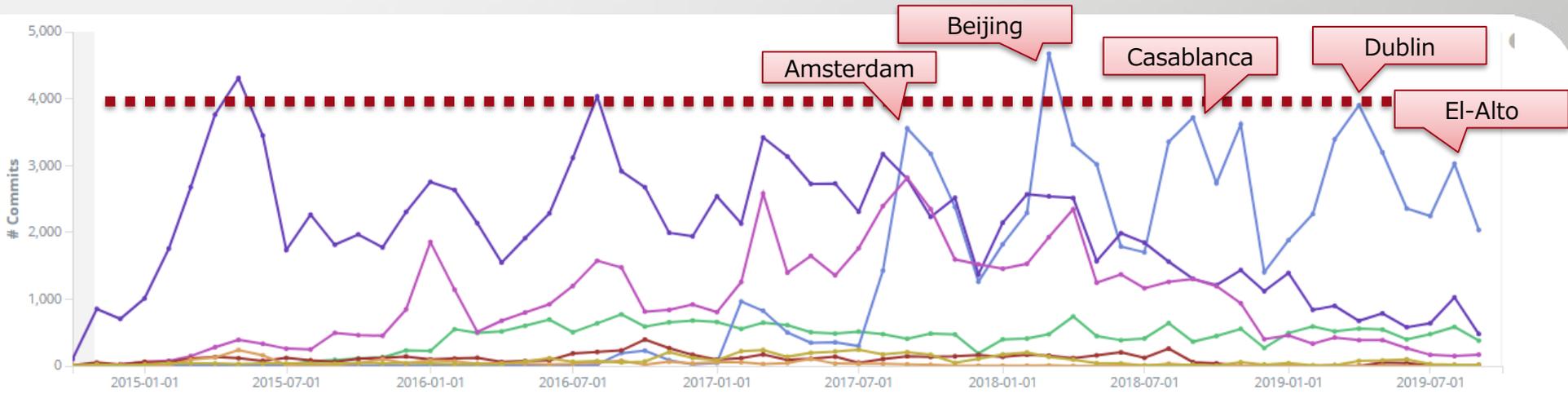
Approved Project数=32

Repository数=285(規模大)

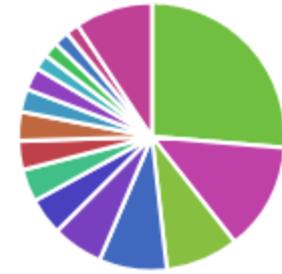
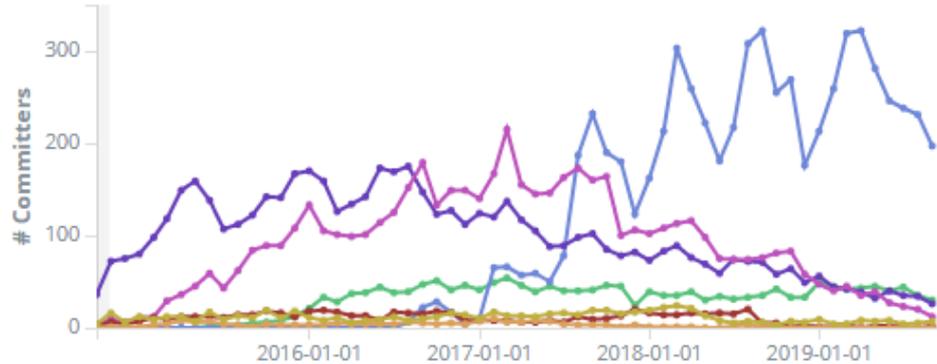
Modeling (Utilities)
Integration
VNF Requirements
VNF Validation Program



コミュニティの活性状況(LFN)



- FD.io
- ONAP
- OpenDaylight
- OPNFV
- pnda
- SNAS.io
- Tungsten Fabric



- att.com
- huawei.com
- amdocs.com
- zte.com.cn
- research.att.com
- intl.att.com
- nokia.com
- intel.com
- in.ibm.com
- chinamobile.com
- linuxfoundation.org

Powered by CHAOSS

Contribution ~ ONAP Dublin

Amsterdam		2017/11/16
Beijing		2018/6/7
Casablanca		2018/11/30
Dublin		
El Alto		
Frankfurt		

FJ参加(2018/11)

Guilin	
Honolulu	
Istanbul	
Jakarta	
Kyoto	
London	
Montreal	
New Delhi	

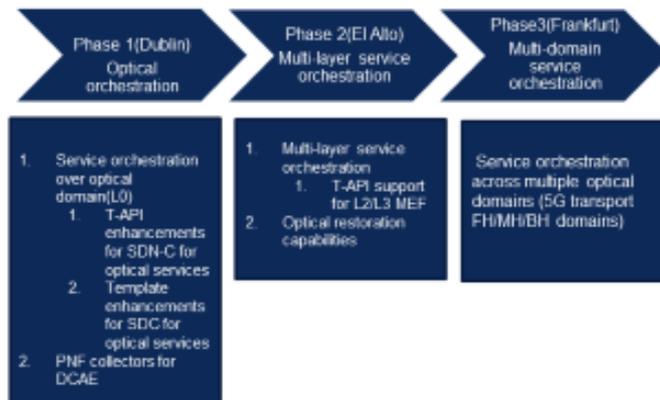
GINNIS

GINNIS Overview

- Project Name: GINNIS
- Repository name: GINNIS
- Project Description
 - This project aims to provide end-to-end multi-layer and multi-vendor service orchestration
 - This project also aims to enable service orchestration over multiple 5G transport networks
- Project Scope
 - Provide Optical restoration capabilities leveraging ONAP SDN-C
 - APIs/interfaces
 - Transport-API (T-API 2.0) – NBI enhancements for L0/L1
 - MEF 80 APIs – NBI enhancements for L2 services
 - OpenROADM / IETF models – L0/L1 Device models
 - RAN – 5G Fronthaul devices
 - Testing and integration plans
 - E2E Openroadm and ONAP testing and integration
 - Features and functionality
 - Can be extended across multiple service provider networks

GINNIS Release Plan proposal

- Initial release (Dublin)
 - Enable T-API based service provisioning for SDN-C for L0
 - Service orchestration over optical domain
 - PNF collectors for DCAE
- Longer-term roadmap
 - T-API enhancements for L2/L3 MEF interfaces
 - Multi-layer service orchestration
 - Service orchestration across multiple optical domains
 - Optical restoration capabilities
 - Multi-service provider orchestration



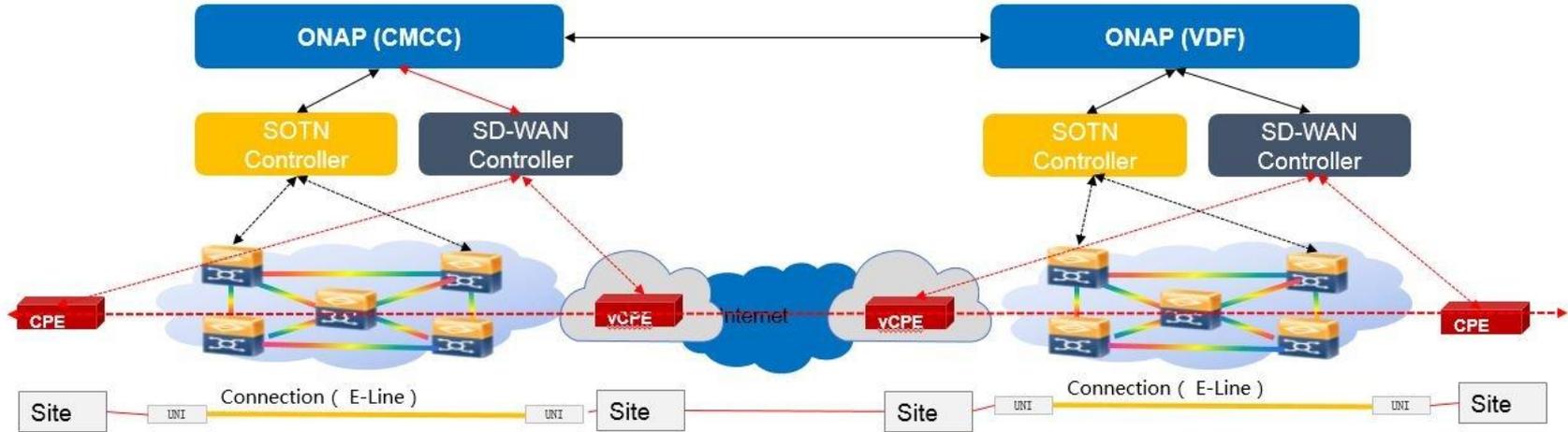
THE LINUX FOUNDATION

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CCVPN use case



CCVPN(Cross domain and Cross layer VPN)ユースケースの拡張として
SOTNのL0/L1機能を富士通で担当

<https://wiki.onap.org/pages/viewpage.action?pageId=45310425>

Use Case Authors

China Mobile, Vodafone, Huawei, ZTE, VMWare, Intel, WindRiver, China Telecom, Fujitsu, Lenovo

ONAP use cases



Residential vCPE

- Reduce software management complexity
- Introduce new features faster without impacting GW architecture
- Simplify devices and connectivity troubleshooting



Cross Domain and Cross Layer VPN

- Utilizing ONAP for managing **end-to-end inter-carrier international private line** connectivity services



vVoLTE

- Leverage VNFs to deploy VoLTE services
- Policy driven configuration management using standard APIs
- Efficient resources allocation, self healing



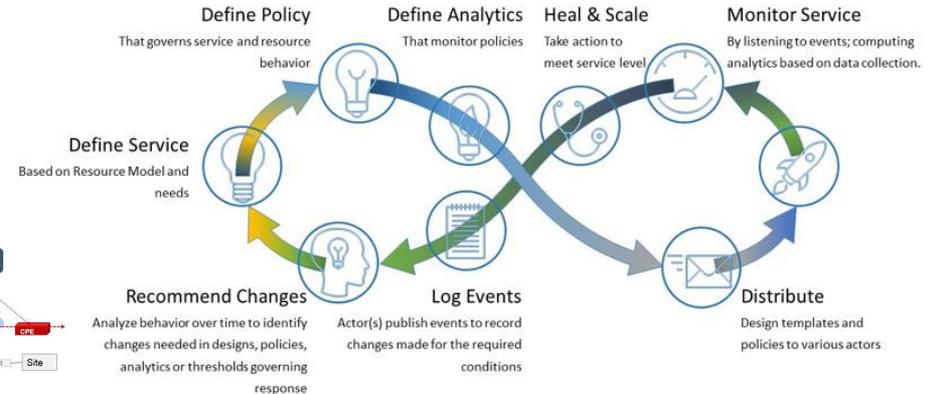
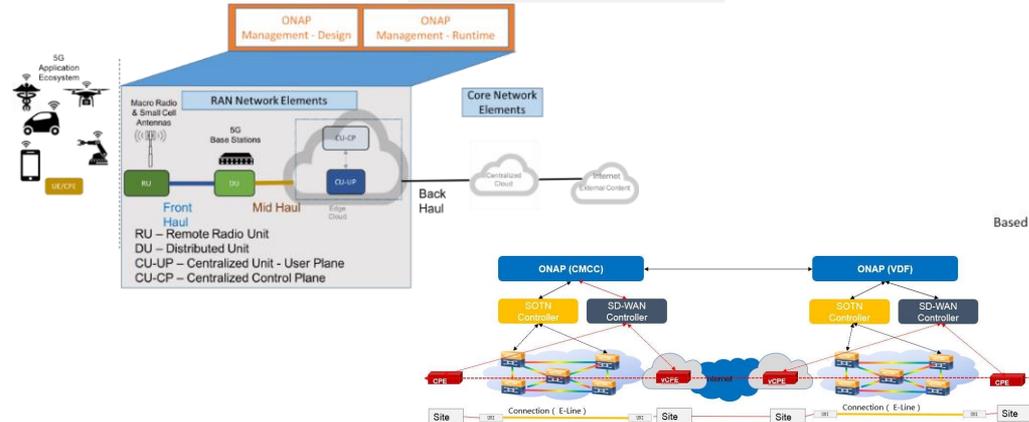
Laying the foundations for 5G support

- Lifecycle management of **physical network functions (PNFs)**
- **Represent PNFs in the TOSCA** model, syntax and semantics
- Real-time **performance monitoring** and data collection

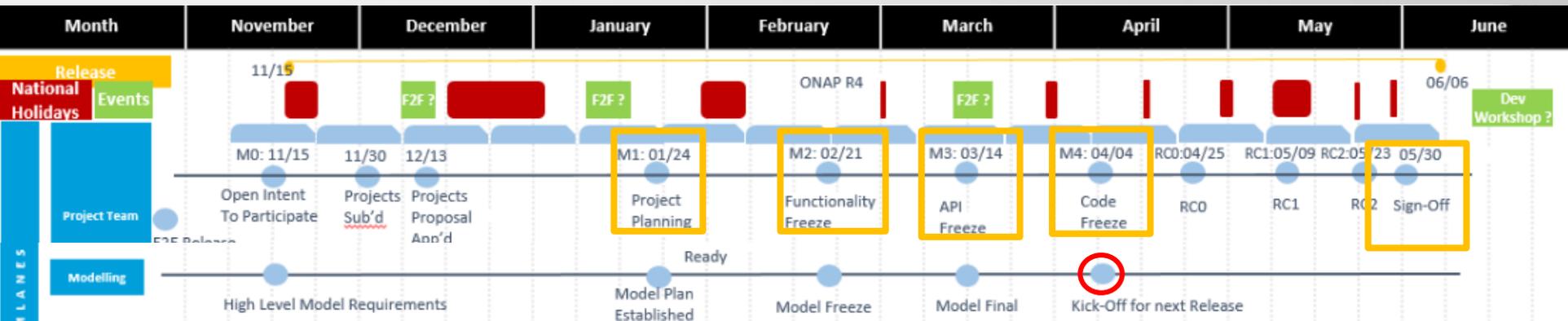


vFirewall

- Allow quick and easy demos without any infrastructure constrains
- vFW and vDNS VNFs lifecycle automation
- Closed loop service monitoring and operation



ONAP開発プロセス



M0: キックオフ

M1: Project Planning

- ガバナンスボードにUse Caseが承認されていること
- プロジェクトプラン、Epicが定義されていること
- リソース計画ができていないこと

M2: Functionality Freeze

- 新機能設計が完了し、新規機能は受け付けられない

M3: API Freeze

- APIとData Modelが凍結
- TSCからのAPIのレビューと承認が完了している

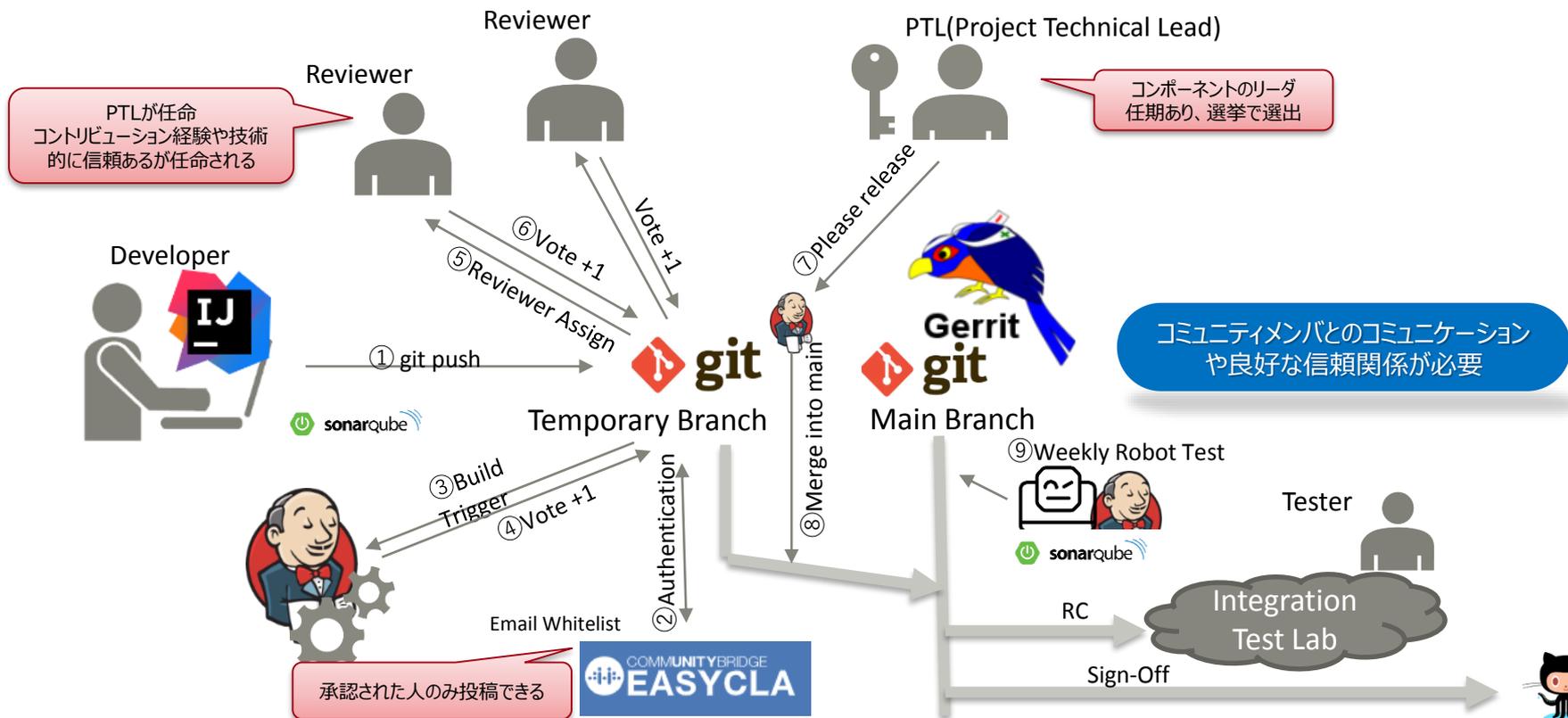
M4: Code Freeze

- Code凍結され、新機能の追加は許可されない

Sign-Off

- Integration Testが完了し、ドキュメント、リリースノートがTSCによりレビューされる

ONAPのソースコード投稿プロセス



Contributor License Agreements 2019/7~

ONAP Meetings

Mon 30	Tue 1	Wed 2	Thu 3	Fri 4
11:30 PM AAI Information Model Reverse Engineering Weekly		12:00 AM #log Weekly (UTC)	11:00 PM TSC Meeting 14:00 (UTC)	
6:00 PM #vfc Team (UTC)	11:00 PM #arc Subcommittee (UTC)		12:00 AM #appc Team (UTC)	12:00 AM #usecase 5G Team (UTC)
9:00 PM #arc Taskforce 1 (UTC)	11:30 PM [university] Subcommittee (UTC)		12:00 AM #usecase CM (UTC)	7:00 AM #arc Taskforce 2 (UTC)
10:00 PM #modeling Resource IM (UTC)	12:30 AM University Webinar (UTC)	12:00 AM #vvp Team (UTC)	12:00 AM #usecase Edge Automation (UTC)	11:00 AM #usecaseui Team (UTC)
10:00 PM #ptl Weekly (UTC)	9:00 AM #msb Team (UTC)	10:00 AM #aai ESR sub-project (UTC)	1:00 AM #sdnr Team (UTC)	10:00 PM CIA Container Images (UTC)
10:00 PM CVC Joint Meeting	10:00 PM #modeling Subcommittee (UTC)	5:00 PM Edge Automation through ONAP WG	4:00 AM #tsc TSC Agenda Review (UTC)	11:00 PM #oof PCI 5G (UTC)
11:00 PM #modeling Datamodel (UTC)	10:00 PM #seccom Subcommittee (UTC)	5:00 PM Edge Automation through ONAP WG	8:00 PM #holmes Team (UTC)	11:00 PM #vnfpkg Team (UTC)
11:00 PM #usecase Subcommittee (UTC)	10:00 PM #usecase Scale Out (UTC)	8:00 PM Openlab subcommittee meeting (UTC)	9:00 PM #aai Dev Meeting (UTC)	
	10:30 PM #cds Weekly meeting 1	9:00 PM #modeling Service IM (UTC)	9:00 PM #pomba Team (UTC)	
	11:00 PM #aaf Team (UTC)	10:00 PM #aai Team (UTC)	10:00 PM #cds Weekly meeting 2	
		10:00 PM #clamp Team (UTC)	10:00 PM #coe Team (UTC) 27th Mar	
		10:00 PM #dmaap No.2 (UTC)	10:00 PM #dcae Team (UTC)	
		10:00 PM #integration team meeting	10:00 PM #doc Team (13:00 UTC)	
		10:00 PM #modeling Papyrus (UTC)	10:00 PM VNF Security Requirements Refresh	
		10:00 PM #multicloud Team (UTC)	10:00 PM VNF Security Requirements Refresh	
		10:00 PM #portal Team (UTC 2019-9-9)	11:00 PM #usecase PNF Upgrade (UTC)	
		10:00 PM #sdnc Weekly (UTC)		
		10:00 PM #SO Team (UTC 2019-9-9)		
		10:00 PM #vid Team (UTC)		
		10:00 PM #vnfsdk Team (UTC)		
		11:00 PM #ctrl-loop Subcommittee (UTC)		
		11:00 PM #extapi Team (UTC)		
		11:00 PM #oom Team (UTC)		
		11:00 PM #usecase Realization (UTC)		
		11:00 PM #vnfrqts Team (UTC)		

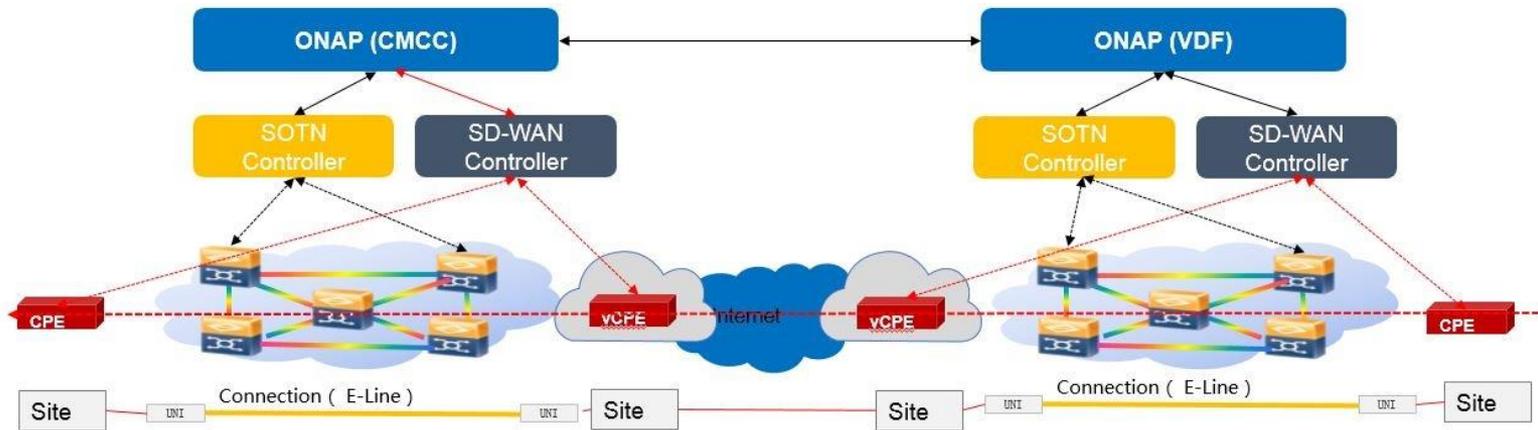


勤務時間をシフトして打合せに参加

ONAP Dublinの実績

- 2019/7/9 Dublinリリース（当初の計画から1か月遅れ）

<https://docs.onap.org/en/dublin/release/index.html#dublinrelease-notes>



Feature

- ① SD-WAN Multi-site to Multi-Site Service Creation
- ② Service Change: Add or Delete a Site
- ③ Close loop Intelligent Surveillance
- ④ E-Lan Service
- ⑤ Value-added Function
- ⑥ Smart Disaster Recovery
- ⑦ Extension for L0/L1 (FJ Proposal)

Included in Dublin release

Postponed to Frankfurt release

とりあえずコントリビューションはできた！！

予想と異なる開発プロセス

コミュニティメンバとの信頼関係の重要性

プレゼンス発揮の難しさ



Next challenge

Next step

Amsterdam  2017/11/16

Beijing  2018/6/7

Casablanca  2018/11/30

FJ参加(2018/11)

Dublin  2019/6/21

El Alto  2019/10/24

新ユースケース提案

Frankfurt 

Guilin 

Honolulu 

Istanbul 

Jakarta 

Kyoto 

London 

Montreal 

New Delhi 

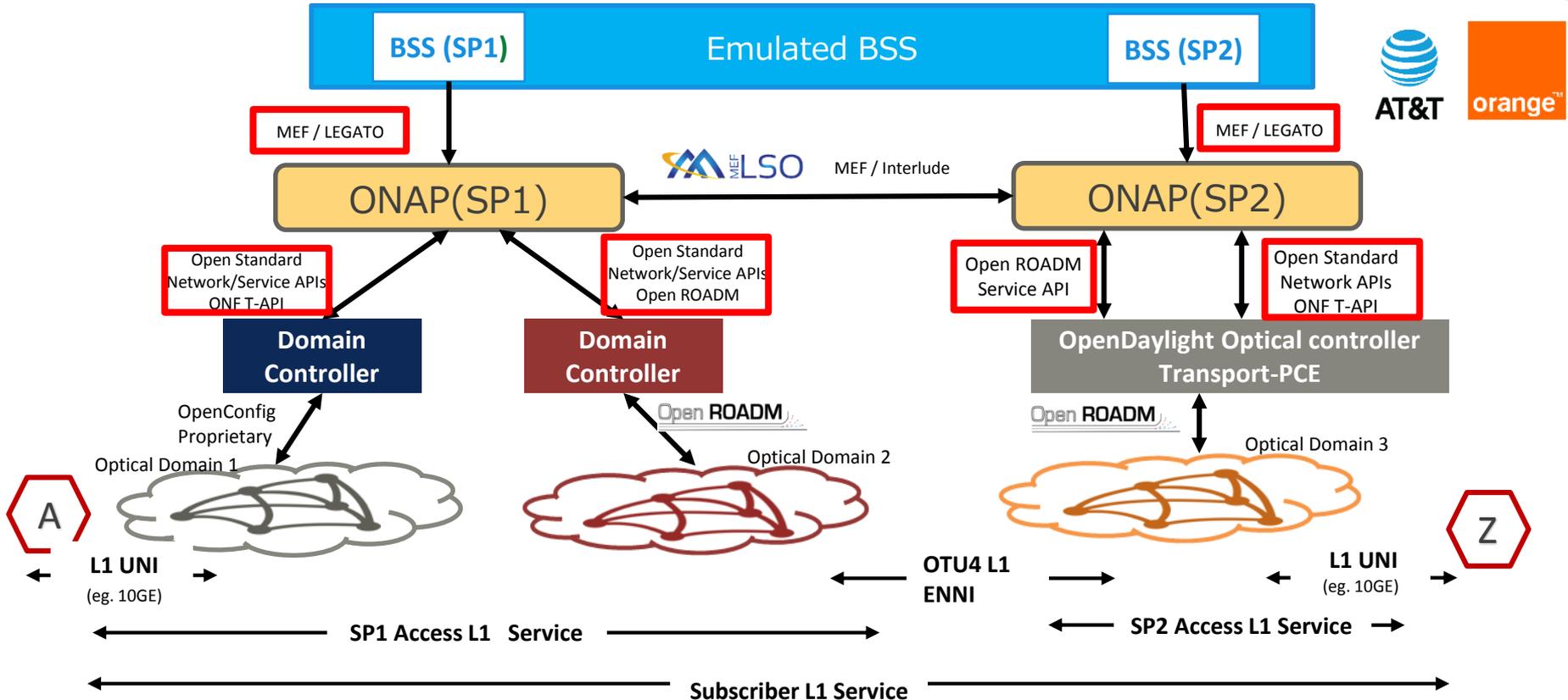
Multi-Domain Optical Network Service(MDONS)

Fujitsu proposal supported by Orange and AT&T

New use case: L0/L1 Optical Networks
Carriers Interconnection

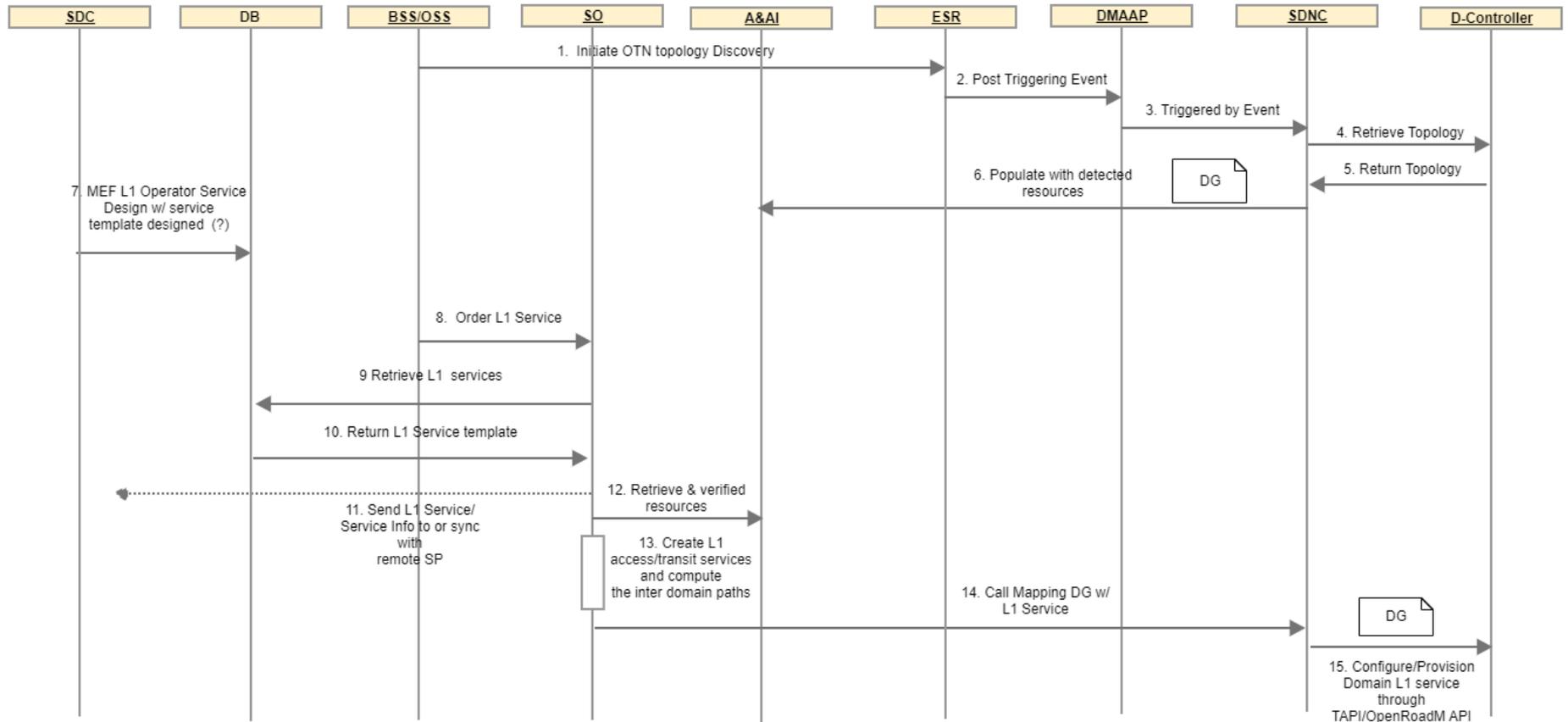
プレゼンスの向上のため
Use Caseオーナーとしてプロジェクトをリード
~ONAPで誰もリーチしていないL0/L1領域への挑戦~

MDONS Overview



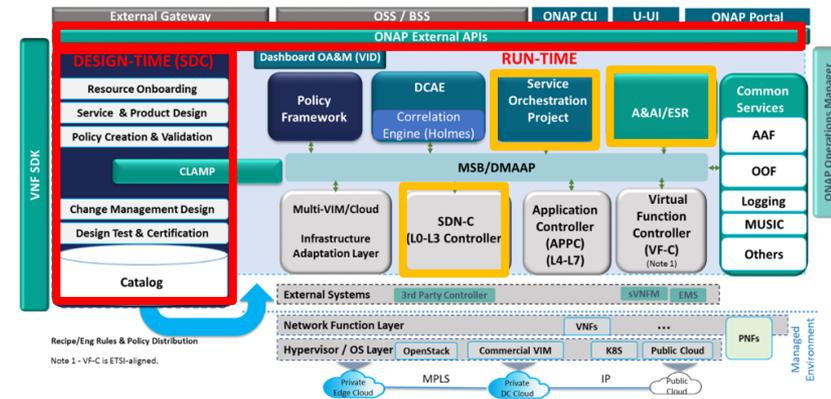
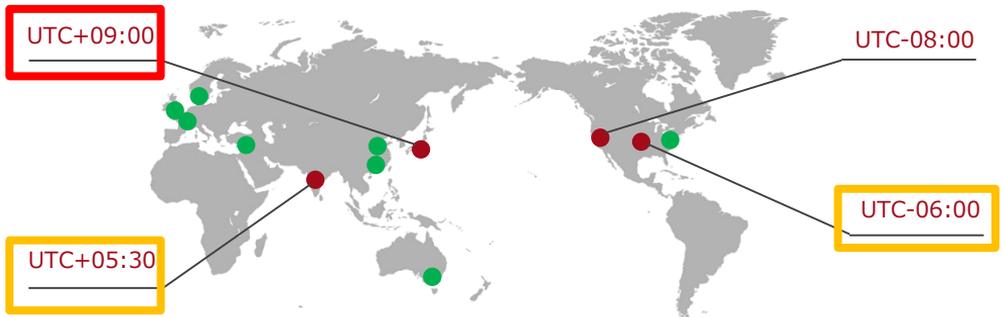
<https://wiki.onap.org/display/DW/Multi-domain+Optical+Network+Services>

MDONS Sequence diagram



ONAP Frankfurt development plan

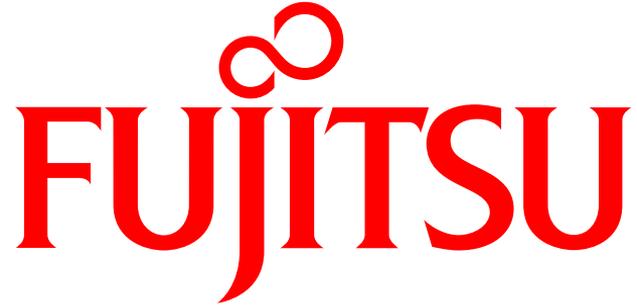
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	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
ONAP	Dublin						Frankfurt								
	▲M1	▲M2	▲M3	▲M4		Sign-off▲				▲M1	△M2	△M3	△M4	Sign-off△	
							El-Alto								
							Sign-off▲								
Fujitsu	CCVPN			China Mobile			Multi Domain Optical Network Service						AT&T orange		
	Investigate/Design		Code/Test/Contribution		vodafone HUAWEI		Investigate/Design			Code/Test/Contribution			Integration Test		



オープンネットワーキングコミュニティでのプレゼンス向上



仲間募集中！

The Fujitsu logo consists of a red infinity symbol positioned above the word "FUJITSU" in a red, serif typeface. The infinity symbol is centered over the 'J' and 'I' of the word.

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