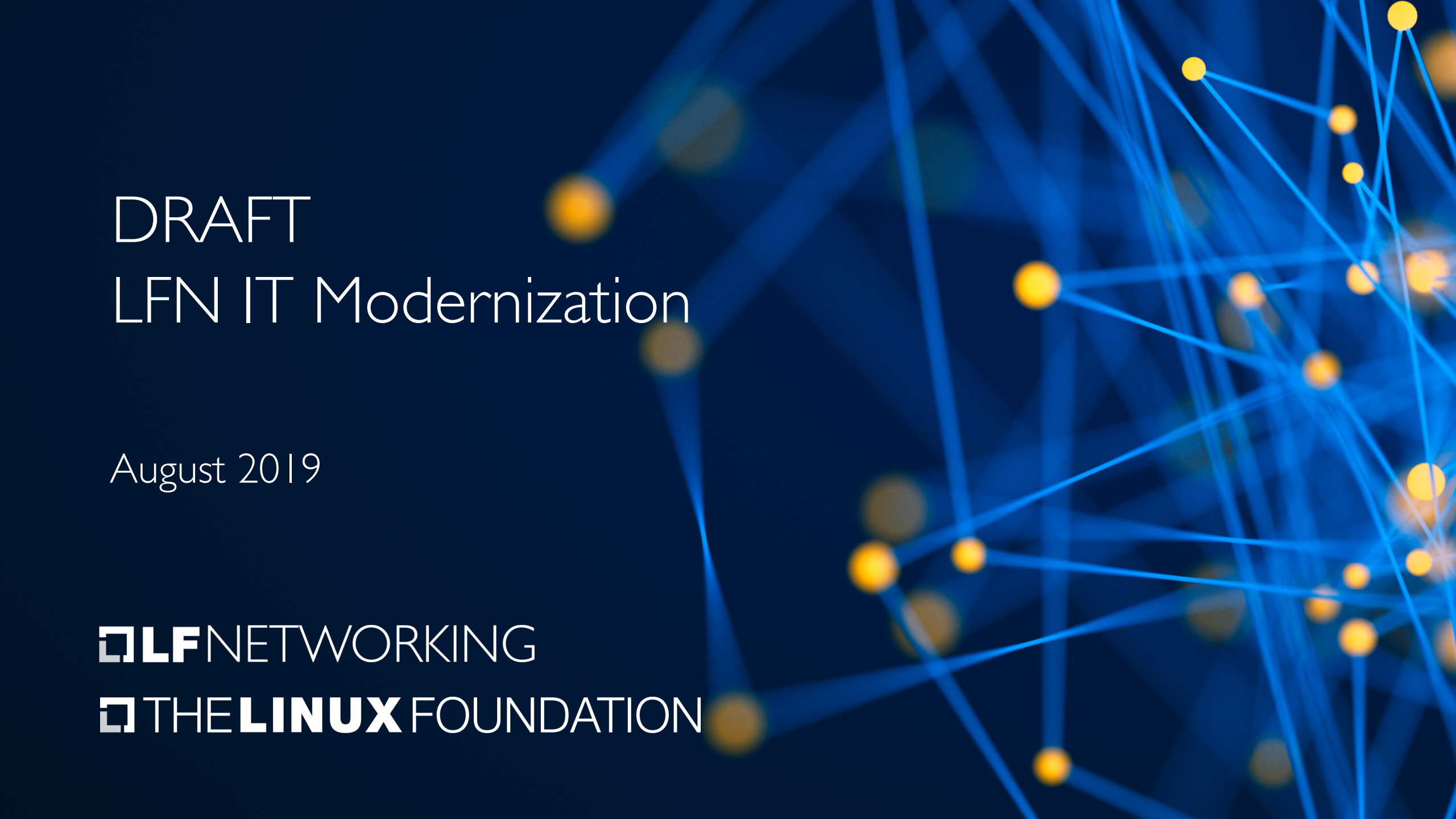

DRAFT
LFN IT Modernization

August 2019

LF NETWORKING

THE LINUX FOUNDATION

Topics

- The Need for LFN IT modernization
- Current LFN IT (tool chains/CI/CD/Environment)
- Driving principles of change
- Proposal – Infra WG

The Need for LFN IT Modernization

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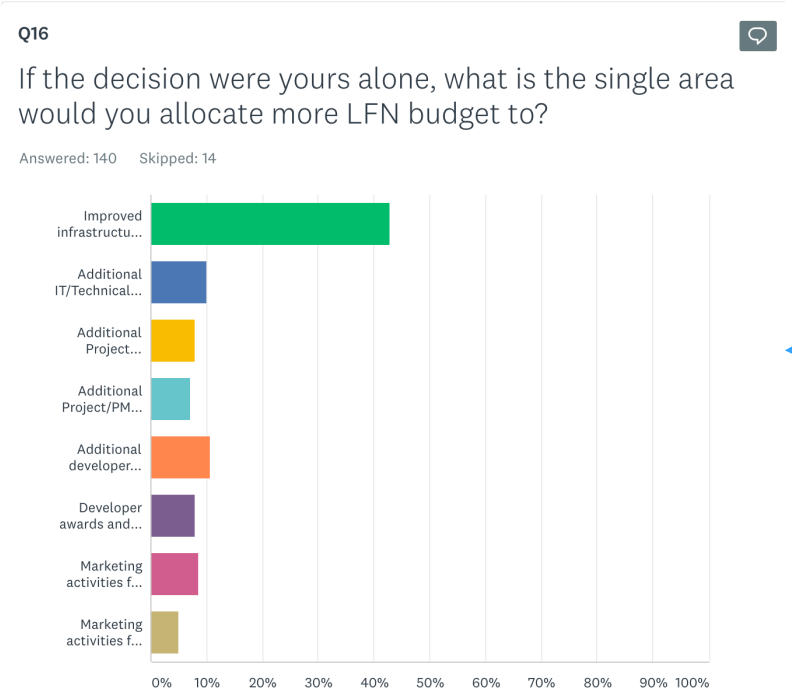
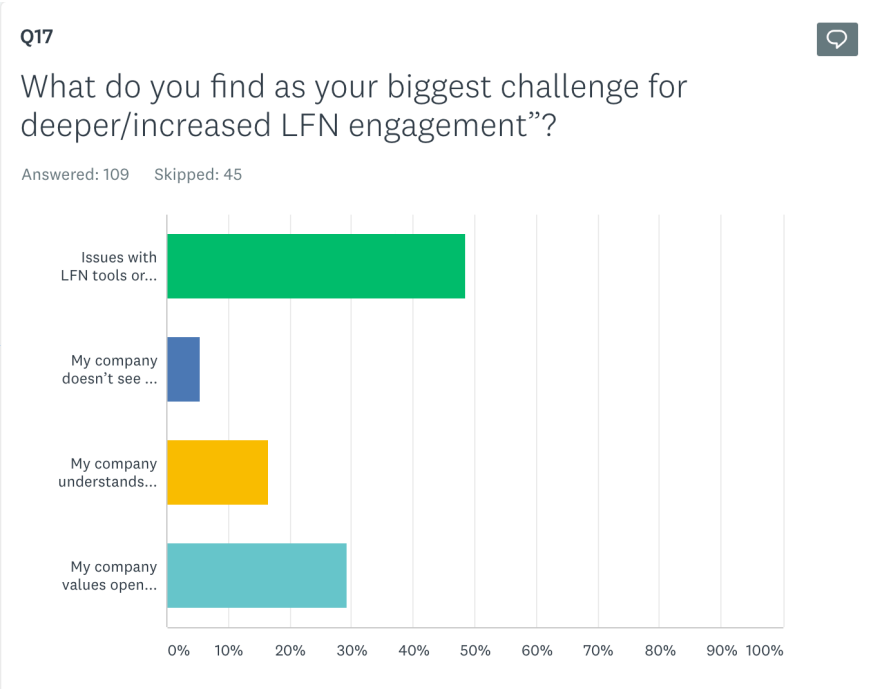
LFN Survey Results consistent with feedback from TAC Infra WG

- Developer centric, mostly "contributors" (~40%); 150+ submissions
- "expectations met" on many categories (e.g. platform availability; ticket turn-around)
- Anecdotal feedback ranging from "great" to "terrible" across multiple survey categories



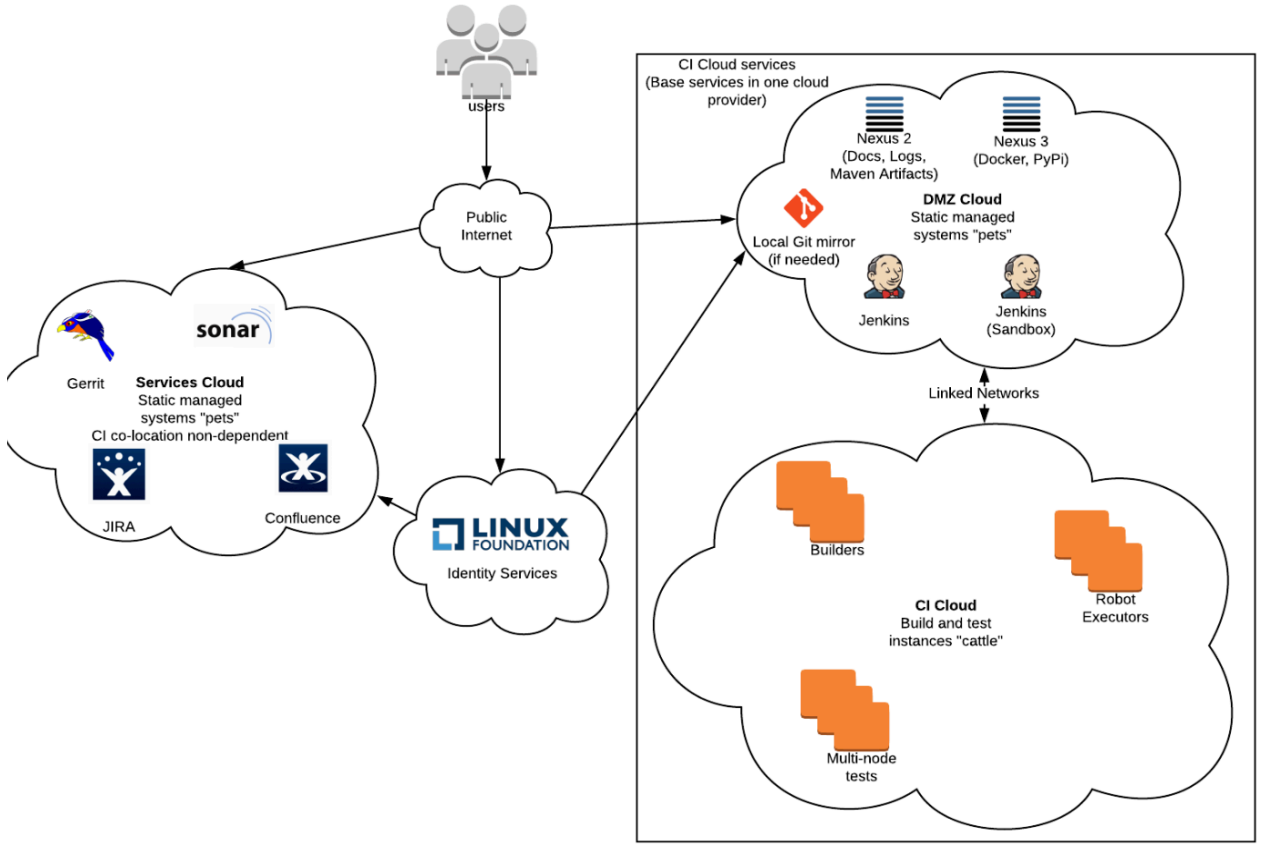
Clear feedback on two areas:



2: Background and Drivers

- Last 3-5 years ODL defined many LFN standards and process for SCM and CI/CD
- Initial OSS tooling for CI: Gerrit, Jenkins and OpenStack stack
- Learning curve was low, high requirement for SCM and CI/CD expert guidance and management

LFN standard Infra: Gerrit/Jenkins/Open Stack Cloud:



IT Services Components:

Service Desk

Collaboration Tools | SysOps

- CI environments initialization
- Project workflows definition
- Templating /Tooling
- Review Code / Committer promotion
- Tag & Manage Repos / Promote artifacts
- Cloud configurations & Upgrades

Project Bootstrap
Dev & Automation
Build Optimization

Guide & Consult
Reference Docs
Break-Fix

LFN IT enhancements – driving principles & assumptions

1. Maintain our #1 mission: "*make developers as productive as possible*"
2. Address community inputs and Working Group findings:
   - Enable modern CI tools that are easy and stable to use
   - Provide more "as-a-service" solutions to remove friction and increase productivity
3. Maintain current environments; minimize disruption
4. Partner with platform vendors supporting broader strategy serving all LF projects
5. Out-of-scope (for this effort): lab integrations and test suites – included in overall LFN plans however

High Level Proposal – In-place automation, migrations and self-service 2019 2H Roadmap

Evolution

Replace Manual Processes
In-flight 2019; removes friction

Migration

Self-Service

Areas of Automation:

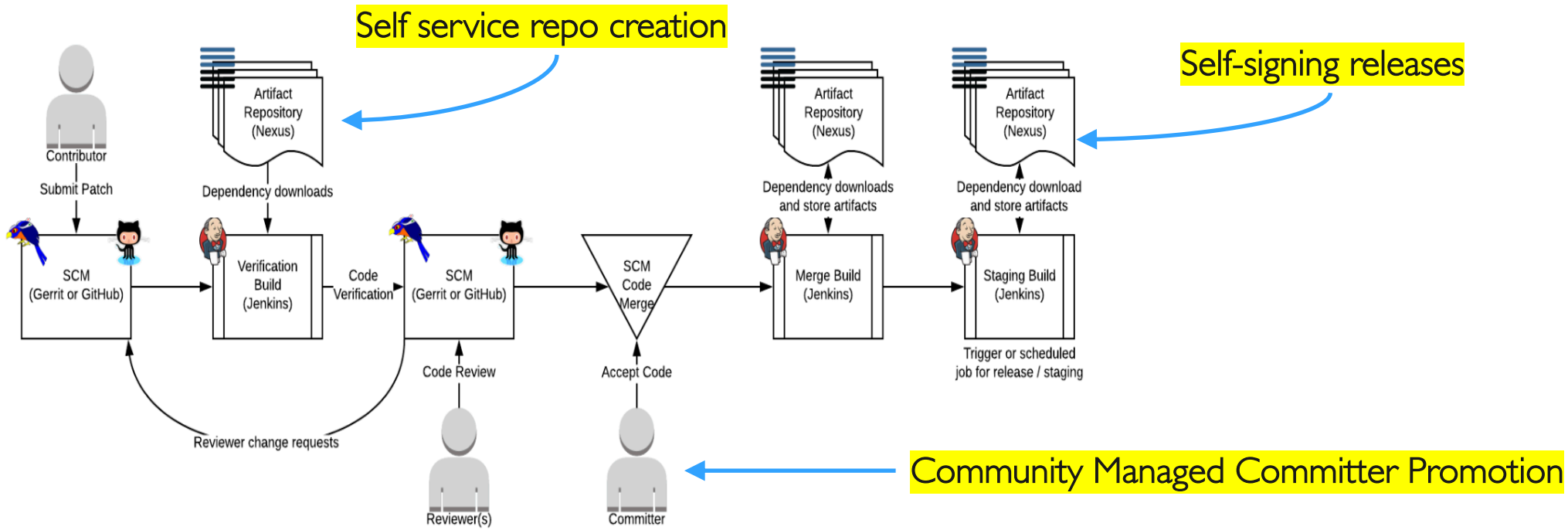


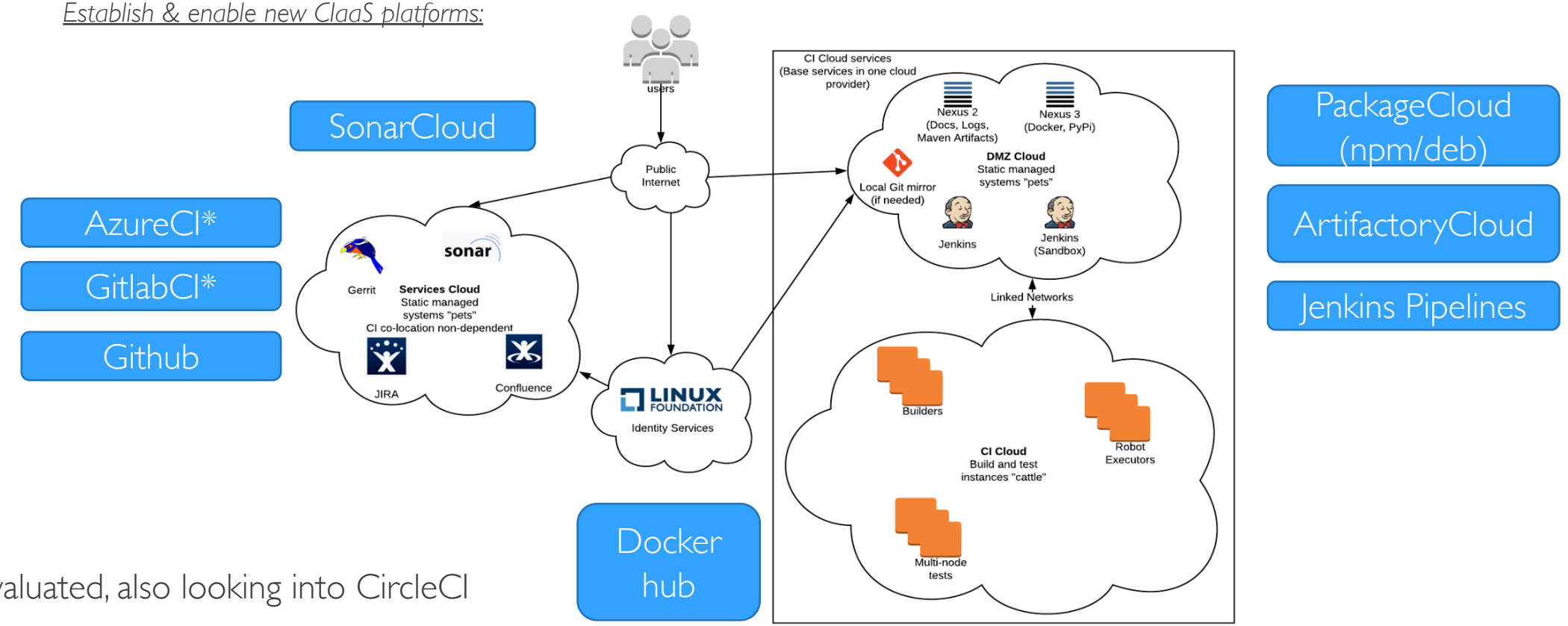
Figure 1

Evaluations and Planned Migration Proposal*

Evolution

Replace Existing Manual → **Migration** PoC; Fit-2-Function; Cost Eval → **Self-Service**

Establish & enable new ClaaS platforms:



* Being evaluated, also looking into CircleCI

LFN Readiness Summary - CI/CD transformation

IT Point of View of level or readiness – this is what the Infra WG should help "validate"

LFN Project	Readiness for Infra / Tools / CI/CD Transformation	Development Area	Readiness Level
OPNFV	**Probable**: Hardware lab centric; desire to mature virtualization capability relative to their lab configurations. New CI platforms Azure Pipelines (AZP) and Gitlab CI (GCI) don't cater to their emphasis on multi-node testing. May be possible to use GCI or AZP to do 'lead node' builds that then bring up virtual labs in a connected cloud – requires project alignment and development time. Primarily Python, no Nexus environment.	Project alignment and discovery; relevance	
ONAP	**Relevant**: GCI or AZP would be good candidates given project desire to move a percentage of the build infra to containers instead of VMs. Potential problem with build node sizes being "free". Many builds require heavier weight instances and build management is premium to this project. Would require negotiated paid tiers or continue existing on low cost and LF managed Open Stack hosting in Vexx or a hybrid configuration to keep costs manageable.	Container competencies; cost analysis	
ODL	**Relevant / Difficult:** Virtually all builds could be handled by either GCI or AZP, provided that the build instances available in the free pools have enough resources. All integration testing is highly dependent on OpenStack configuration due to development around multi-node testing. ODL has jobs that are by design 24+ hour for stability testing. AZP "unlimited" build time jobs are capped at ~6 hours. Possible approach: limited move of builds to AZP (or GCI). Integration testing continues on Jenkins / OpenStack initially, then transform them from current "freestyle" job design (global-jjb) to new Jenkins pipeline library support – this gives benefits of being pipeline based CI/CD.	Project alignment; hybrid setup to enable pipelines	
Fd.IO	**Most Likely**: The most active sub-project already using containers for builds. Unmanaged releases. Probably they could transition to either GCI or AZP. With either of these platforms they could add in virtualized resources, or their own hardware labs, as needed.	Project alignment	
Tungsten Fabric	**Uncertain**: Currently managing their own Zuul deployment which requires they remain on Gerrit. Zuul does not support GitHub as an SCM source and only supports Gerrit.	n/a	
PNDA / OpenSwitch	Not currently in LF portfolio for CI/CD tools	n/a	

Discussion and Next steps proposed

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LFN Infra WG – Next Steps jointly with LFN IT

- Cost analysis including utilization needs beyond platform "free tiers"
- Per platform feature breakdown
  - Container Registry; Package Hosting and formats (maven, NPM, etc.); external builder capabilities
  - Caching support; matrix builds across multiple platforms; Cross Project Pipelines
- Validation of project readiness levels
- Confirmation of overall effort and priority – project specific
  - Effort calculation, project management, scheduling & coordination
  - Training and education needs related to new tools and platforms – community size
- Validating selection criteria and relative priority
  - Features, functions, costs, scalability