

Federation Roadmap (Draft)

This document outlines plans of the PlanetLab Consortium and the OneLab Project to federate PlanetLab, with UPMC running a sub-authority (Planetlab-EU) under the root-authority (PlanetLab) currently managed by Princeton. PlanetLab-EU is expected operate in a way that is consistent with the PlanetLab's primary mission as a global testbed for developing, deploying, and accessing planetary-scale network services, but it will otherwise be an independent management authority (responsible for the stability of a set of nodes) and slice authority (responsible for the behavior of a set of slices).

Tentatively, this will entail:

- **Node Migration.** OneLab members will bring up PlanetLab-EU nodes, which will federate with PlanetLab. We will then incrementally (one site at a time) move nodes hosted at European sites from the existing PlanetLab to PlanetLab-EU. During this transition, new European sites may join PlanetLab-EU. The exact schedule is to be determined, and will be set by the engineering team. The sites that fall under the PlanetLab-EU sub-authority will be decided by mutual consent among Princeton, UPMC, and the sites in question.
- **Membership Agreements.** PlanetLab-EU will draft its own membership agreement, with new sites that join PlanetLab-EU signing that agreement. Current PlanetLab sites will be allowed to continue on either PlanetLab or PlanetLab-EU under the terms of their existing PlanetLab agreement. Sites that migrate to PlanetLab-EU are free to sign the new PlanetLab-EU agreement and let their current PlanetLab agreement lapse over time. To the extent allowed by legal and cultural constraints, the PlanetLab-EU membership agreement will be consistent with the terms defined in the existing PlanetLab agreement. Commercial sites that wish to join PlanetLab-EU may temporarily join PlanetLab, deferring their dues until the PlanetLab-EU membership agreement is ready.
- **Network Operations.** PlanetLab and PlanetLab-EU will run independent operations teams, including a "support" mailing list. The local support team will handle local support requests without needing to consult their colleagues elsewhere on PlanetLab. For support requests that cross federation boundaries, the initial team will respond according to an agreed upon procedure/template, CC'ing the other support team to ensure that any necessary follow up is taken. The two teams will work to define a common response procedure and template messages.
- **Resource Sharing.** Initially, users will be able to view the federated PlanetLab as no different than the current PlanetLab. This means that by contributing two nodes to any one PlanetLab, a site is granted the right to create ten slices that span the federated PlanetLab. (Transitional sites that belong to both PlanetLab and PlanetLab-EU will be limited to ten slices total.) Over time, we expect richer peering agreements to evolve.
- **Software Development.** Princeton will continue to produce PlanetLab software distributions. PlanetLab-EU will contribute to this software through a combination of submitting enhancements and patches to Princeton and having co-developer access to the Princeton code base, the exact method being decided by the engineering teams. Changes on both sides will adhere to an agreed upon API, with a well-defined process for making changes. Although the API is the fixed point around which the two code bases can diverge, the expectation is that PlanetLab and PlanetLab-EU will run nearly identical software so as to minimize heterogeneity that end users must deal with.