

The logo for Helix Nebula features the words "HELIX" and "NEBULA" in a grey, sans-serif font. A stylized blue and grey helix shape is positioned between the two words. The background is decorated with several circular patterns of blue dots, resembling a nebula or a data visualization, and a larger, more complex blue cloud-like shape in the upper right corner.

HELIX  
NEBULA

THE SCIENCE CLOUD

# Tech Arch Proposal for a Federated Cloud

Building the Helix Nebula System

by Tech Arch Group

# Tech Arch Mission

- ☛ Tech Arch is built from cloud technology and architecture experts from supply-side partners
- ☛ Provide, from a technical perspective:
  - ☛ Requirements
  - ☛ Solution and Architecture
  - ☛ Drive the Roadmap – incremental releases
  - ☛ Reference technologies as building blocks
- ☛ Share lessons learned and knowledge in running PoCs

# Helix Nebula Architecture Document

## Objective

- Bring together past and current knowledge
  - Set a stake in the ground
  - Elicit feedback
  - Devise an incremental roadmap
- No implementation constraints  
(e.g. budget, time)

# Helix Nebula Architecture ToC

- 1: Introduction
- 2: Cloud Vision
- 3: Requirements
- 4: Proof of Concept Results
- 5: **Helix Nebula Service Enabling Framework**
- 6: **Roadmap**
- 7: Conclusion
- Document: <http://cds.cern.ch/record/1478364/files/HelixNebula-NOTE-2012-001.pdf>

# Requirements

## Actors

- Supply-side – Providers  
(e.g. Providers, Consumers, SMEs)
- Demand-side – Consumers
- Broker – Middle men (blue box)
- SME Supplier - Independent Service Providers
- SME Consumer - Independent Service Providers



# User Story Categories

- Simple Provisioning
- Contextualisation
- Image Management
- Data Transfer and Placement
- Image Marketplace
- Data Marketplace
- Security
- Networking
- Cross Cloud / Federated Provisioning
- Hybrid Cloud Deployment
- Service Discovery

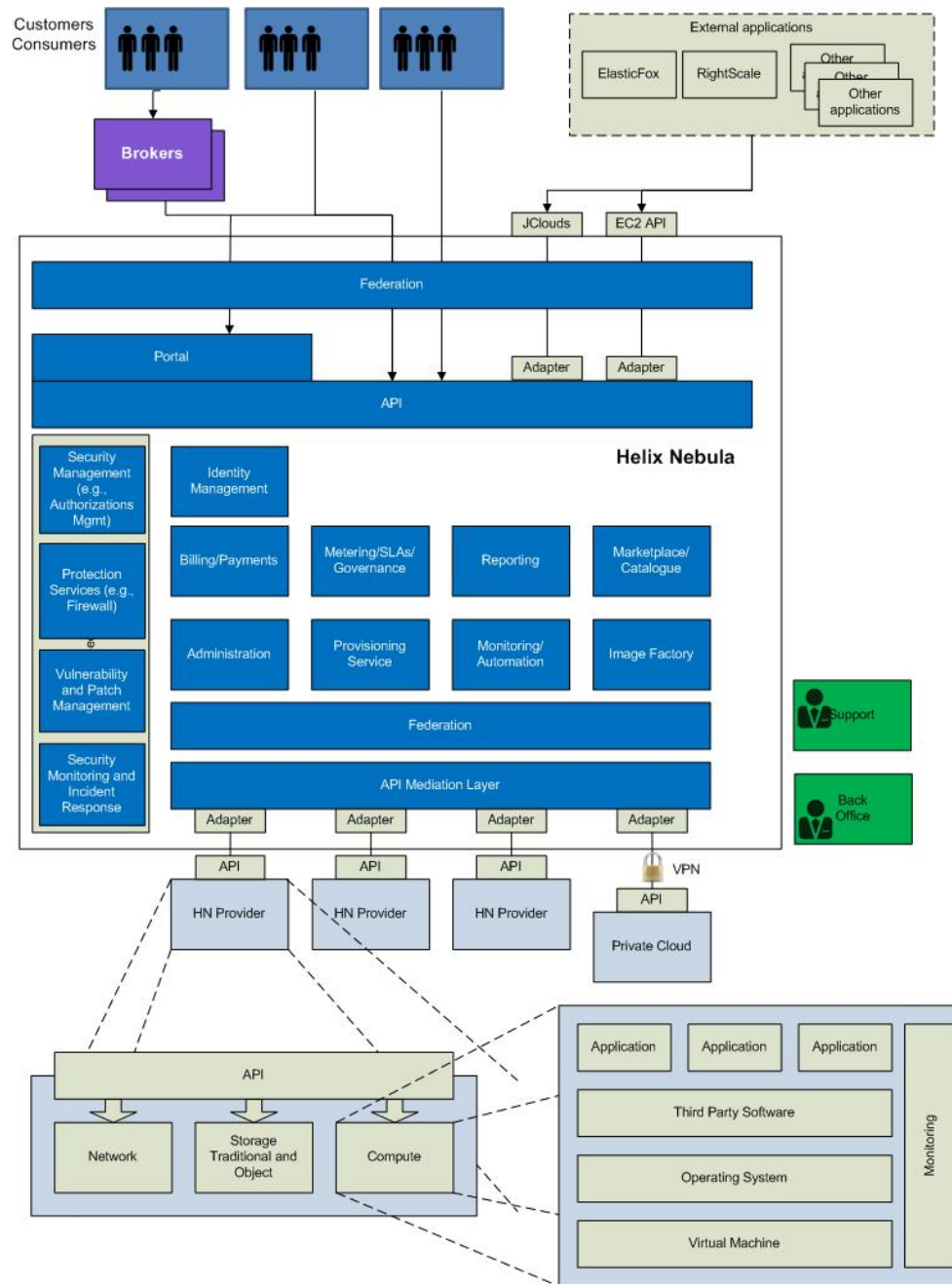
# Requirements Sample

- ☛ Identifies actors (e.g. Providers, Consumers, SMEs)
- ☛ Captures functional requirements in the form of User Stories:
- ☛ “As a HN consumer, I can refer to an image via a unique identifier, such that I can more easily know if this image is present in a given cloud or not. This means that images are annotated and/or tagged with unique identifier, and maintained across copy and replication processes”

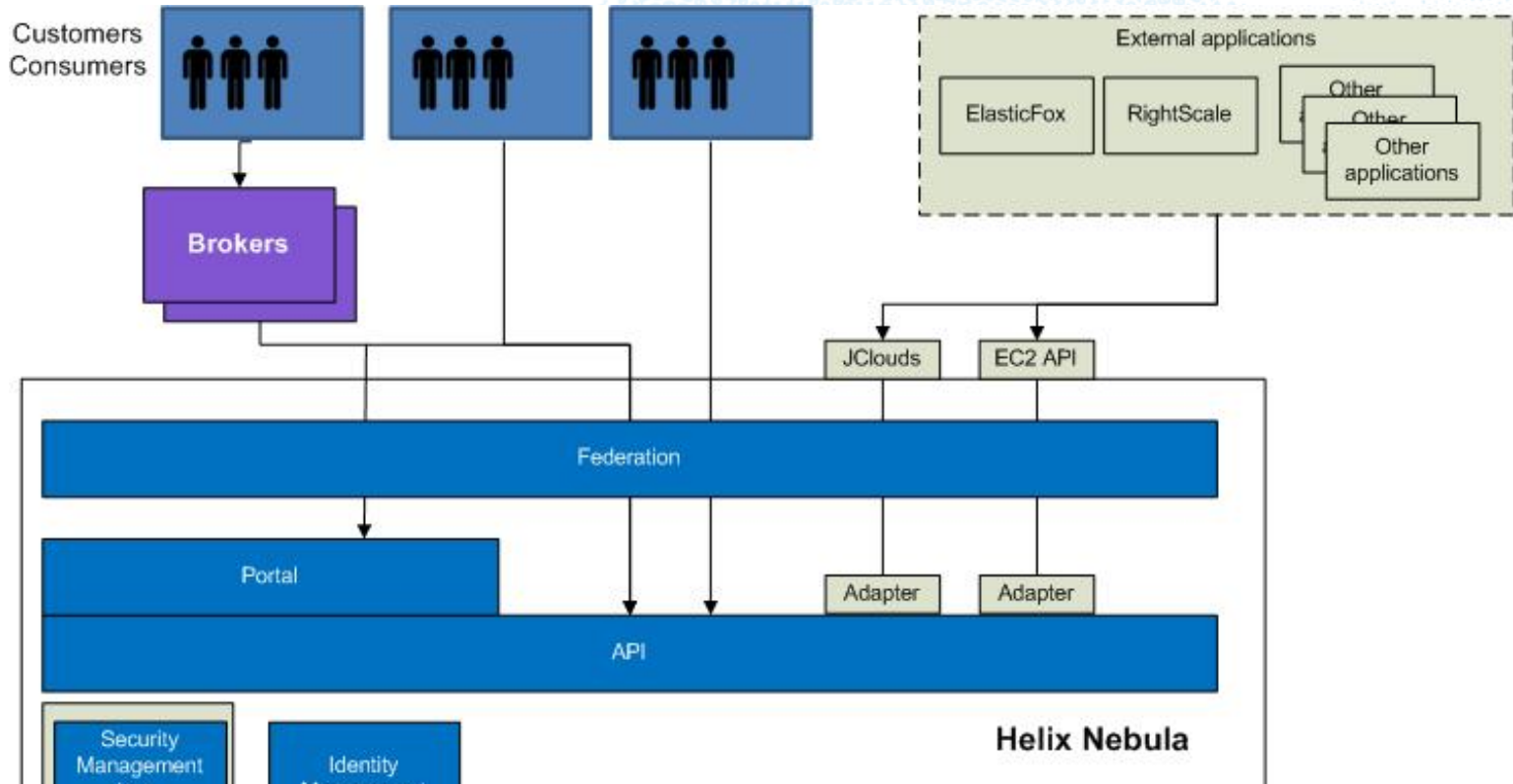
# Service Enabling Framework

- So-called “Blue Box”
- Provides API services and a Web Portal
- Provide users with unified interfaces
- Provide suppliers with clear container/  
interfaces

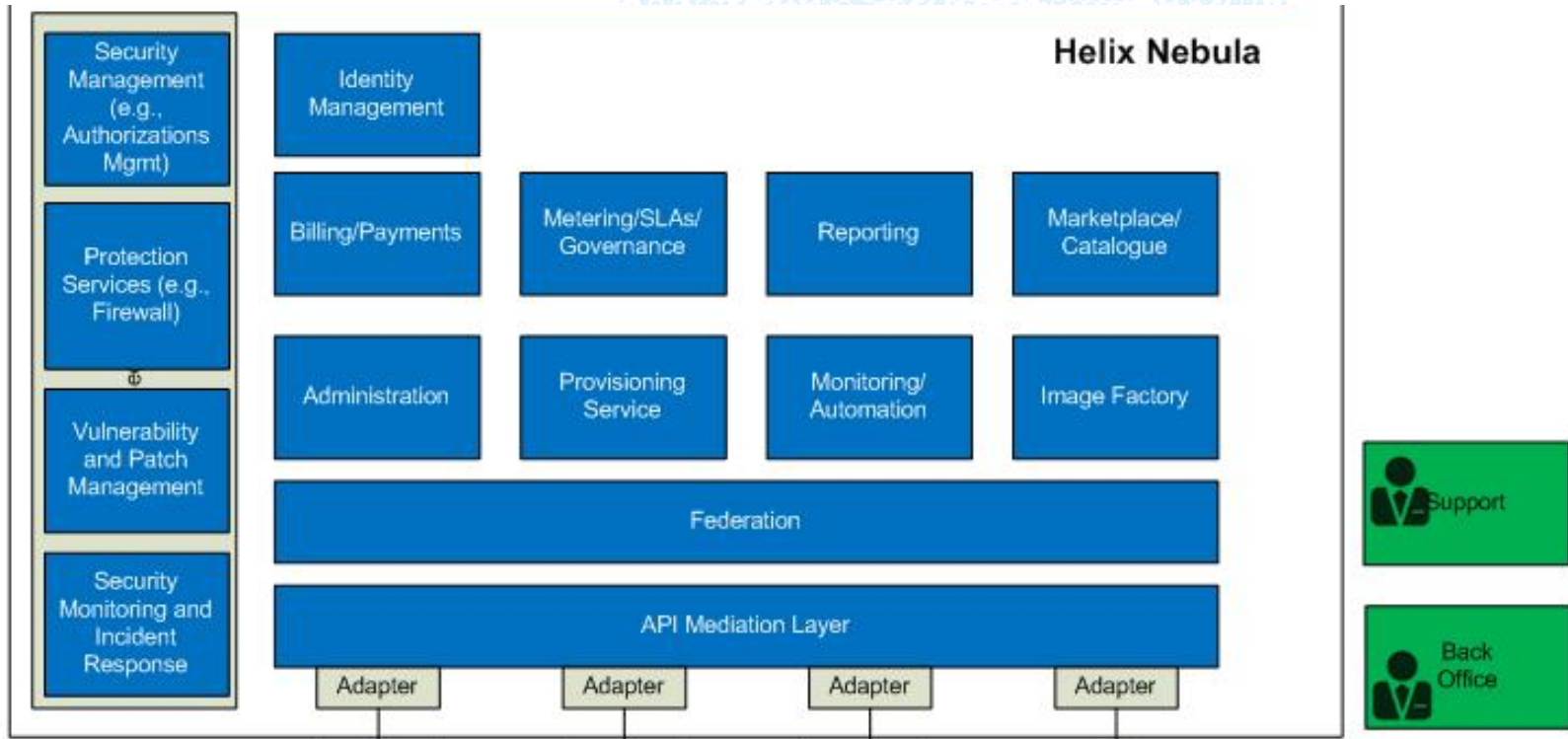
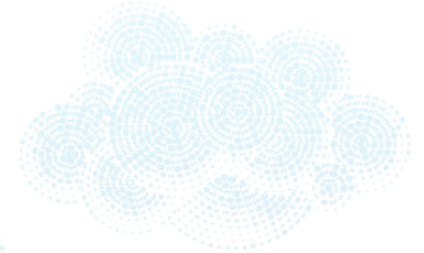




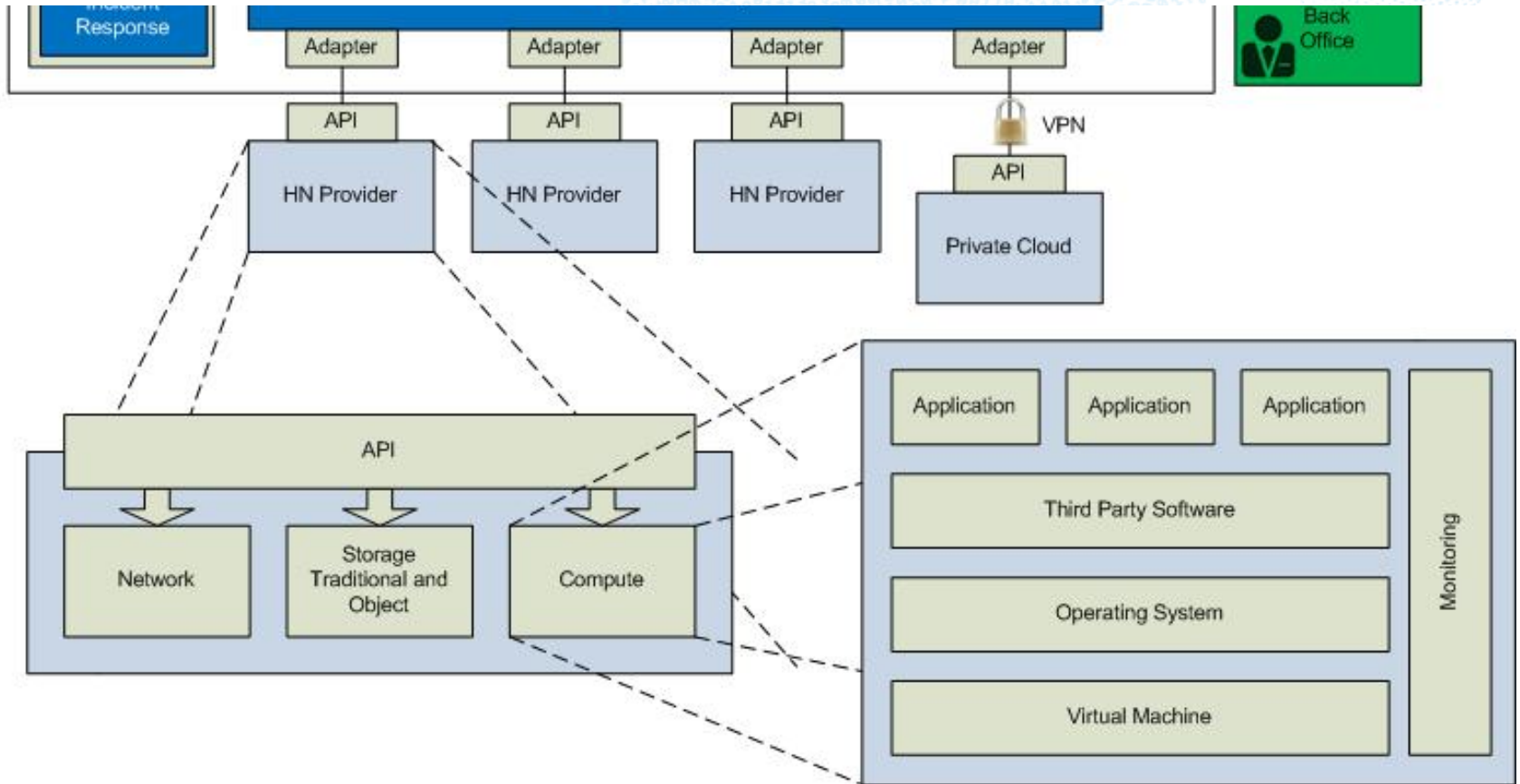
# The “blue box”



# The “blue box”



# The "blue box"



# Roadmap

- Build the Helix Nebula vision incrementally
- What would be the key features to make the “blue box” relevant? For users and providers?
- Identified 3 releases with corresponding features
- This is only a proposal!



# Conclusion

- ☞ One year on...
- ☞ Strong of having gone through several PoCs
- ☞ Reference Architecture
- ☞ Roadmap

# Thanks!!

- ☞ Paul Parsons, The Server Labs
- ☞ Phil Evens, Logica (DE)
- ☞ Emmanuel Mathot, Terradue
- ☞ Micheal Higgins, CloudSigma
- ☞ Wouter de Heer, Atos
- ☞ Kaspar Duetting, T-Systems
- ☞ Simon Oppenheimer, Interoute
- ☞ Marc-Elian Bégin, SixSq
- ☞ ... and all other past and present Tech Arch members