



Introduction to the Leostream Platform

Advanced Capacity and Connection Management for your Hybrid Cloud

Version 9.0 – June 2018

Contacting Leostream

Leostream Corporation
271 Waverley Oaks Rd.
Suite 206
Waltham, MA 02452
USA

<http://www.leostream.com>
Telephone: +1 781 890 2019

To submit an enhancement request, email features@leostream.com.

To request product information or inquire about our future direction, email sales@leostream.com.

Copyright

© Copyright 2002-2018 by Leostream Corporation

This software program and documentation are copyrighted by Leostream. The software described in this document is provided under a license agreement and may be used or copied only under the terms of this agreement. No part of this manual may be copied or reproduced in any form without prior written consent from Leostream.

Trademarks

The following are trademarks of Leostream Corporation.

Leostream™

The Leostream graphical logo™

The absence of a product name or logo from this list does not constitute a waiver of the trademark or other intellectual property rights concerning that product, name, or logo by Leostream.

The OpenStack Word Mark and OpenStack Logo are either registered trademarks/service marks or trademarks/service marks of the OpenStack Foundation, in the United States and other countries and are used with the OpenStack Foundation's permission. Leostream is not affiliated with, endorsed or sponsored by the OpenStack Foundation, or the OpenStack community. Linux is the registered trademark of Linus Torvalds in the U.S. and other countries. OpenLDAP is a trademark of The OpenLDAP Foundation. Microsoft, Active Directory, SQL Server, and Windows are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Other brand and product names are trademarks or registered trademarks of their respective holders. Leostream claims no right to use of these marks.

Patents

Leostream software is protected by U.S. Patent 8,417,796.

Contents

CONTENTS	3
INTRODUCTION	4
LEOSTREAM™ PLATFORM COMPONENTS.....	4
LEOSTREAM CONCEPTS	5
HOW LEOSTREAM MANAGES USERS.....	7
WHERE TO GO NEXT?	8

Introduction

Leostream lies at the heart of any hosted resource deployment, providing crucial functionality for assigning desktops to users and managing their connections. For cloud environments, Leostream also provides advanced functionality for managing capacity, allowing you to expand and contract your cloud environment to meet the ever-changing demands of your organization.

Using Leostream, you provide end users with consistent, reliable access to desktops from a wide range of client devices and can host your resources in a wide range of on-premises or public cloud platforms. This document provides information on the basic concepts and components that power the Leostream™ platform.

Leostream™ Platform Components

The Leostream Connection Broker is the backbone of the Leostream platform, with the Leostream Gateway, Leostream Agent, and Leostream Connect client providing important supporting functionality. For more details on any of the Leostream components, visit the Leostream [Documentation page](#).

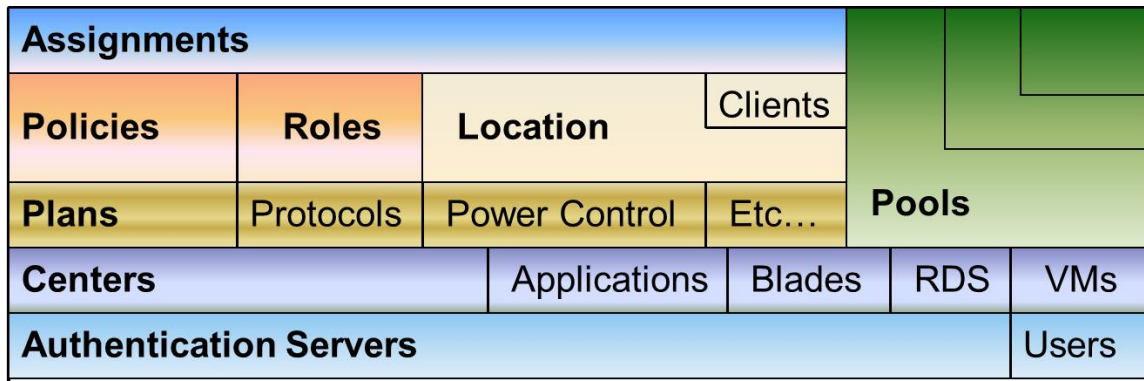
- **Connection Broker:** The main application that manages the hosted desktop environment. The Connection Broker is the central management layer for configuring your deployment, including inventorying and provisioning desktops, assigning and connecting users to these desktops, and defining the end-user experience. The Connection Broker also includes a web portal for users to access their hosted resources.
- **Leostream Gateway:** An optional application that provides HTML5-based clientless remote access for users connecting to their remote desktop. The Leostream Gateway also provides gateway functionality for protocols such as RDP, HP RGS, and Mechdyne TGX, to connect users to desktops that are hosted in a network that is isolated from the user's client device.
- **Leostream Agent:** When installed on the remote desktop, the Leostream Agent provides the Connection Broker with insight into the connection status of remote users, including when they log out, disconnect, or lock their desktop. The Agent also manages enhancements such as USB device passthrough and network printer redirection. The Leostream Agent is available for Microsoft Windows, Linux and macOS operating systems. For more details, see the [Leostream Agent Administrator's Guide](#).
- **Leostream Connect:** A software client provided by Leostream that allows users to log into your Leostream environment and access their hosted resources from fat or thin clients. Using Leostream Connect, you can repurpose existing desktops and laptops as client devices, lowering the cost of VDI deployments. Some thin clients provide built-in Leostream Connect clients. For more details, see the [Leostream Connect Administrator's Guide](#).

In addition to using Leostream Connect, users can log into Leostream using the Leostream Web client, any PCoIP client device, Dell Wyse ThinOS clients, or any number of compatible thin clients.

- **Database:** In a proof-of-concept environment, the Connection Broker stores all information in an internal PostgreSQL database. A large-scale, redundant production environment requires an external PostgreSQL or Microsoft® SQL Server® 2012, 2014, or 2016 database.

Leostream Concepts

Before beginning to configure your Leostream environment, you should familiarize yourself with the core Leostream concepts. All Connection Broker configuration is done in the Administrator Web interface. There, you define the Leostream concepts shown in the following figure. Generally, begin by defining authentication servers, and fill in the other concepts as you work through your configuration.

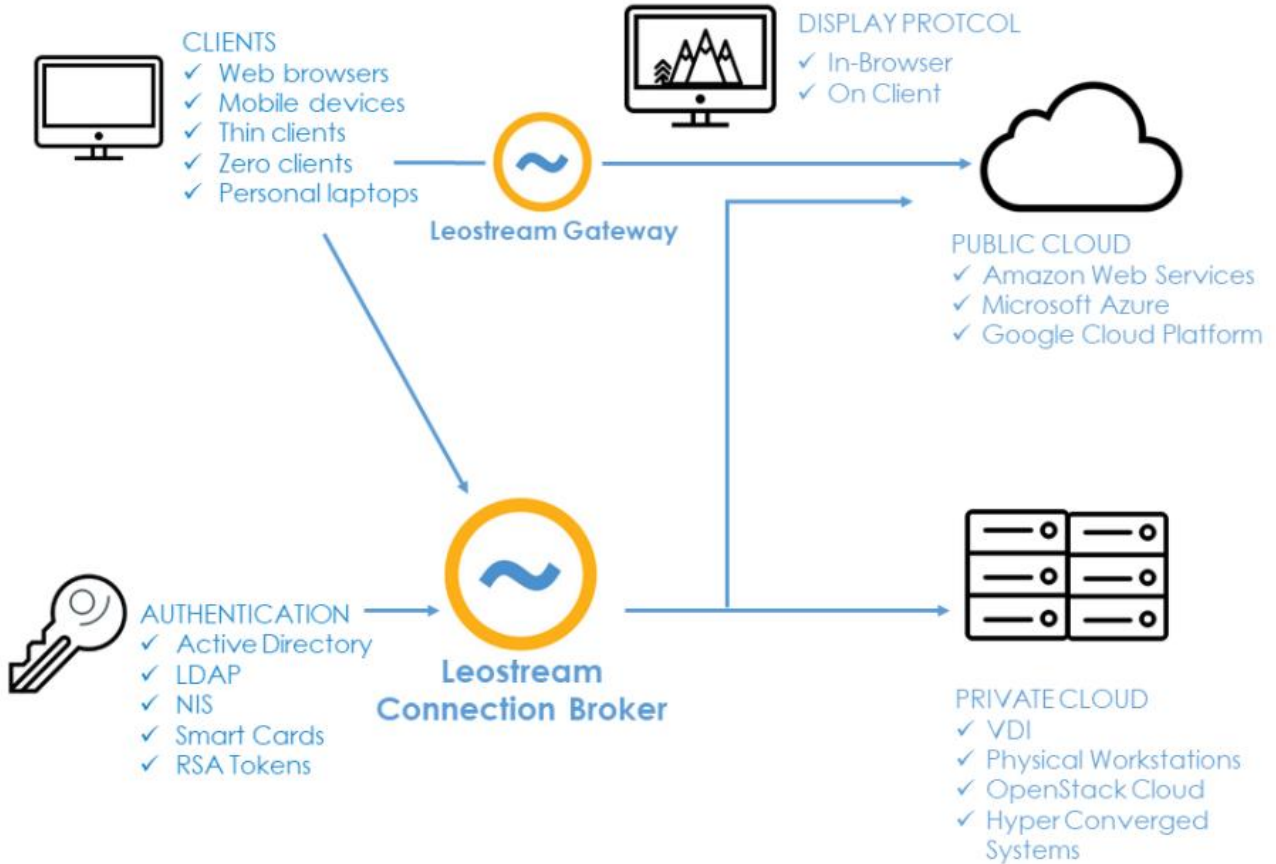


The following table describes these concepts in more detail.

Leostream Concept	Definition
Authentication servers	A server that provides authentication services to users logging into the Connection Broker. The Connection Broker supports Microsoft Active Directory®, OpenLDAP™, and NIS directory services. You can specify any number of trusted or not-trusted domains, using any combination of authentication server types. In addition, the Connection Broker allows you to manually define local users without configuring an authentication server.
Centers	The external systems from which the Connection Broker inventories hosted resources, including desktops and printers. Leostream supports a wide range of both on-premises solution and cloud hosting providers.
Pools	Collections of desktops. A desktop's pool membership controls how the Connection Broker manages the end user's connection and remote session. Pools also define rules that determine when the Connection Broker creates new desktops in the cloud.
Plans	Common sets of rules that define how the Connection Broker manages the end user's connection to their assigned desktop, including protocol, power control, and release plans.
Policies	Rules that assign desktops from one or more pools and associate plans with the desktops in those pools. Policies also control USB device passthrough permissions. The Connection Broker assigns a single policy to the user.

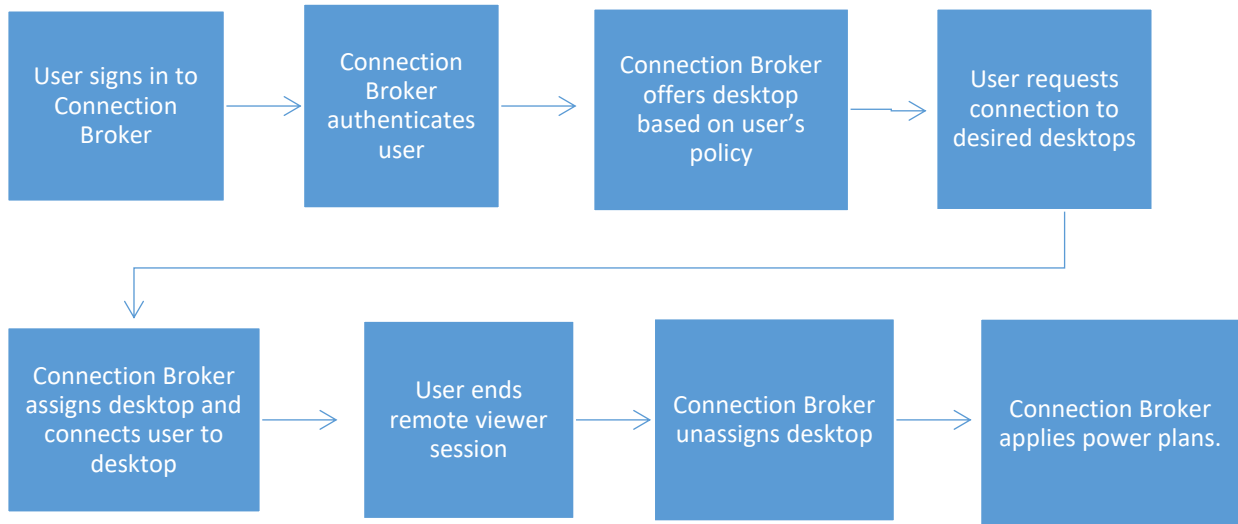
Leostream Concept	Definition
Roles	Permissions that control the level of access users have to the Connection Broker Administrator Web interface.
Assignments	A set of rules that determine which role and policy the Connection Broker assigns to a user, based on who the user is and where they logged in.

The following figure depicts a high-level architecture of a hybrid-cloud hosted desktop environment managed by Leostream.



How Leostream Manages Users

The following figure illustrates the steps involved in connecting users to desktops, which are described in more detail after the illustration. With the exception of authenticating users, policy logic determines how the Connection Broker handles each step.



1. **User signs into the Connection Broker:** End users log into the Connection Broker using a Web browser, thin client, mobile device, or Leostream Connect software client. Different client types support different types of credentials, such as username/password, smart cards, proximity cards, RSA tokens, or fingerprints.
2. **Connection Broker authenticates user:** After the Connection Broker receives the user's credentials from the client, Leostream searches for the user in the domains defined in the Connection Broker.
3. **Connection Broker offers resources based on user's policy:** The Connection Broker assigns a policy to the user based on the assignment table associated with the domain chosen in step 2.
4. **User requests connection to desired desktop:** Users with policies that offer multiple desktops can choose which, and how many, desktops they want to connect to.
5. **Connection Broker assigns desktop and connects user:** After the user selects one or more desktops, the Connection Broker assigns those desktops to the user. After a desktop is assigned to a particular user, the Connection Broker will not offer that desktop to any other user.

After the assignment is made, the Connection Broker launches the display protocol selected for that desktop. The Connection Broker is not in the data path of the display protocol connection. If the user's desktop is isolated in a different network, you can use the Leostream Gateway to tunnel the user's desktop connection.

6. **User ends remote viewer session:** When the user disconnects or logs out of their remote desktop, the Connection Broker applies any power control or release actions specified by the plans assigned to that desktop in the user's policy.
7. **Connection Broker unassigns desktop:** If the user's release plan releases the desktop back to its pool, the Connection Broker unassigns the desktop. Otherwise, the Connection Broker retains the desktop assignment. If the desktop is released to its pool, it becomes available for other users.
8. **Connection Broker applies power policy:** Lastly, the Connection Broker takes any power control actions set in the user's policy.

Where to go next?

Consult the following guides for more information on setting up your Leostream environment.

- [Leostream Installation Guide](#) – For instructions on installing all components in the Leostream platform
- [Connection Broker Quick Start Guide](#) – For a general overview of how to configure pools, policies, and assignments in the Connection Broker
- [Leostream Gateway Guide](#) – For information on installing and using the Leostream Gateway
- [Leostream Scalability Guide](#) – For guidelines on creating a large-scale production environment
- [Connection Broker Administrator's Guide](#) – For a complete description of all Connection Broker functionality