

Cloud IPStore: A Cloud SaaS Repository for your Intellectual Properties

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Intellectual Property (IP)

- Intellectual property (IP) refers to creations of the intellect for which a monopoly is assigned to designated owners by law.
- Intellectual property rights (IPRs) are the protections granted to the creators of IP, and include *Trademarks*, *Copyright*, *Patents*, *Publications*, *Software Products*, Industrial design rights, and in some jurisdictions trade secrets.



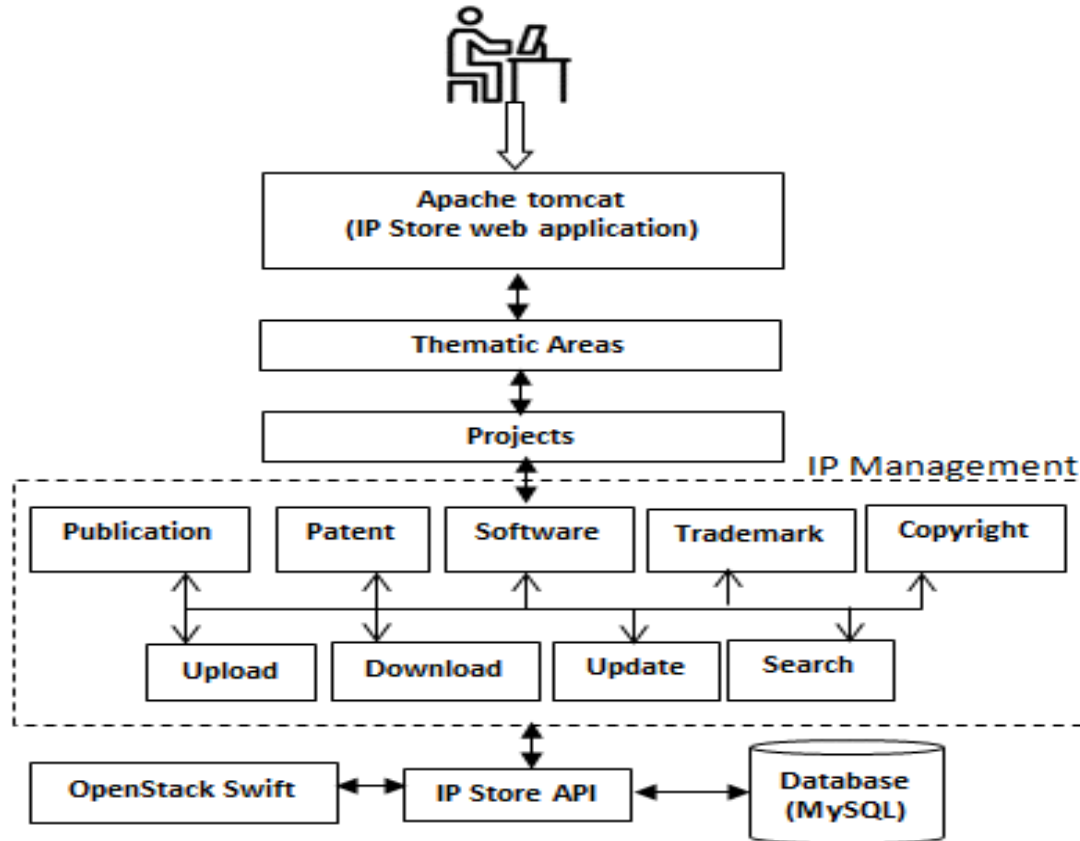
Introduction: Cloud IPStore

- Aim: To provide centralized repository for storing and accessing the Intellectual Property generated by multiple groups at various locations of an organization
 - Stores and indexes the Patents, Publications, Software(s), Trademarks and Copyrights generated
 - Multiple versions of Software IP's can coexist, as Cloud IPStore supports versioning mechanism
- Cloud IPStore is a Software as a Service (SaaS)
 - Accessed through the Internet/ Intranet, through a web-based Graphical User Interface

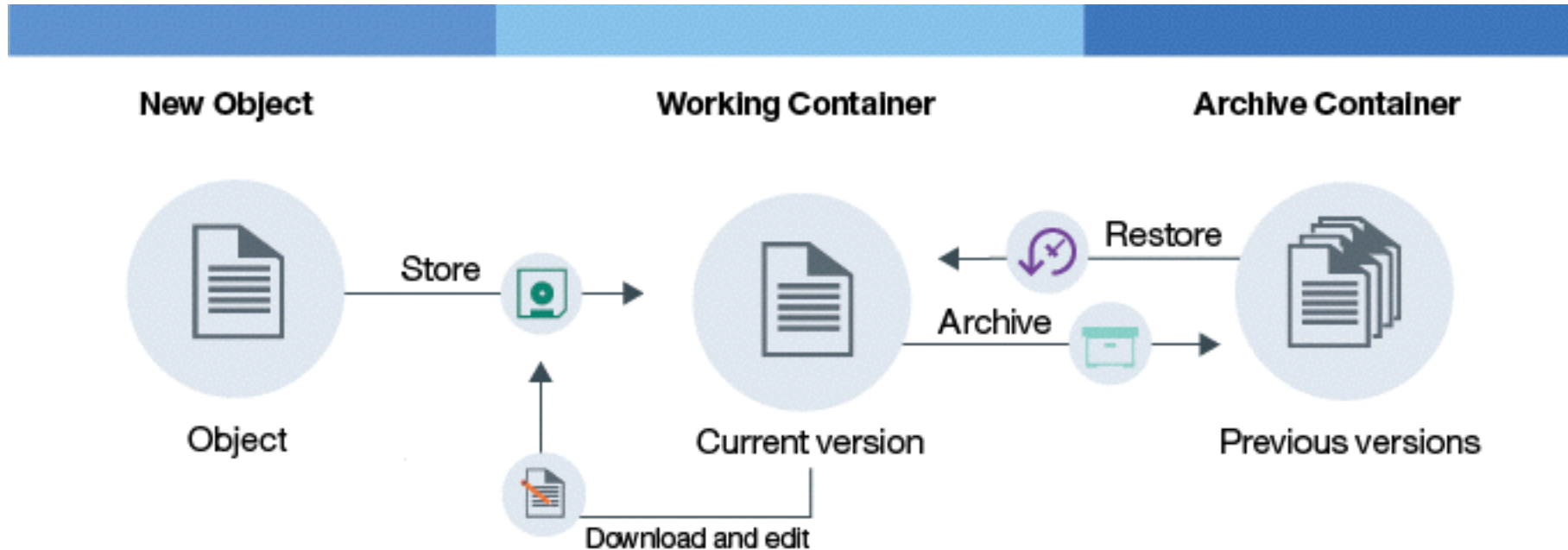
Need for Cloud IPStore

- Management of Intellectual Property simplifies and optimises the process of development and maintenance of the following IP's generated by the organization:
 - Software Products
 - Centralized facility for accessing the software tools and its contents, for the development team
 - Multiple versions of the software are stored efficiently
 - Role based access
 - Patents and Publications
 - Access to information of IP's help increase in knowledge base of users and the management - in turn helping them to
 - Copyrights and Trademarks

Architecture



Swift versioning



Architecture

- Application Server is used to host IPStore web application
- OpenStack Swift is used for object storage
 - Data is stored in the form of Objects
 - Objects will be stored in Containers
 - By default, all latest IP's are saved in *CDAC_container*
 - Previous versions of IPs with time-stamp are saved in *CDAC_Backupcontainer*
 - Timestamp is converted into standard time for managing the object file versions and to avoid duplication
- IPStore API uploads the user IP to OpenStack Swift
- MySQL Database is used as an back-end for storing the IP's
- IPStore is deployed on SuMegha Cloud Infrastructure and all IP's are stored on SuMegha Cloud storage
- Integrated with C-DAC's Single Sign On authentication

SuMegha Scientific Cloud

- SuMegha allows users to run scientific application through a cloud interface.
- CloudVault—Storage as a Service.
- On demand Provisioning MPI and Map reduce clusters to support compute intensive and data intensive applications.
- Easily store, import, share, and query images.
- Secure and quick access to HPC clusters.

Features

- Upload IP
- Update IP
- Download IP
 - Any user can download any IP
- Search IP
 - User can search IP's based on IP Name or User Name
 - Useful to avoid duplication, if the IP already exists
- Software Versioning
 - For Software Product - User can select the version to be downloaded
 - Software Product uploaded should be in zip, 7z, tar, tar.gz format
- View IP's before downloading

Upload IP

- Users have to select the Thematic Area, Projects and IP type and fill details accordingly.

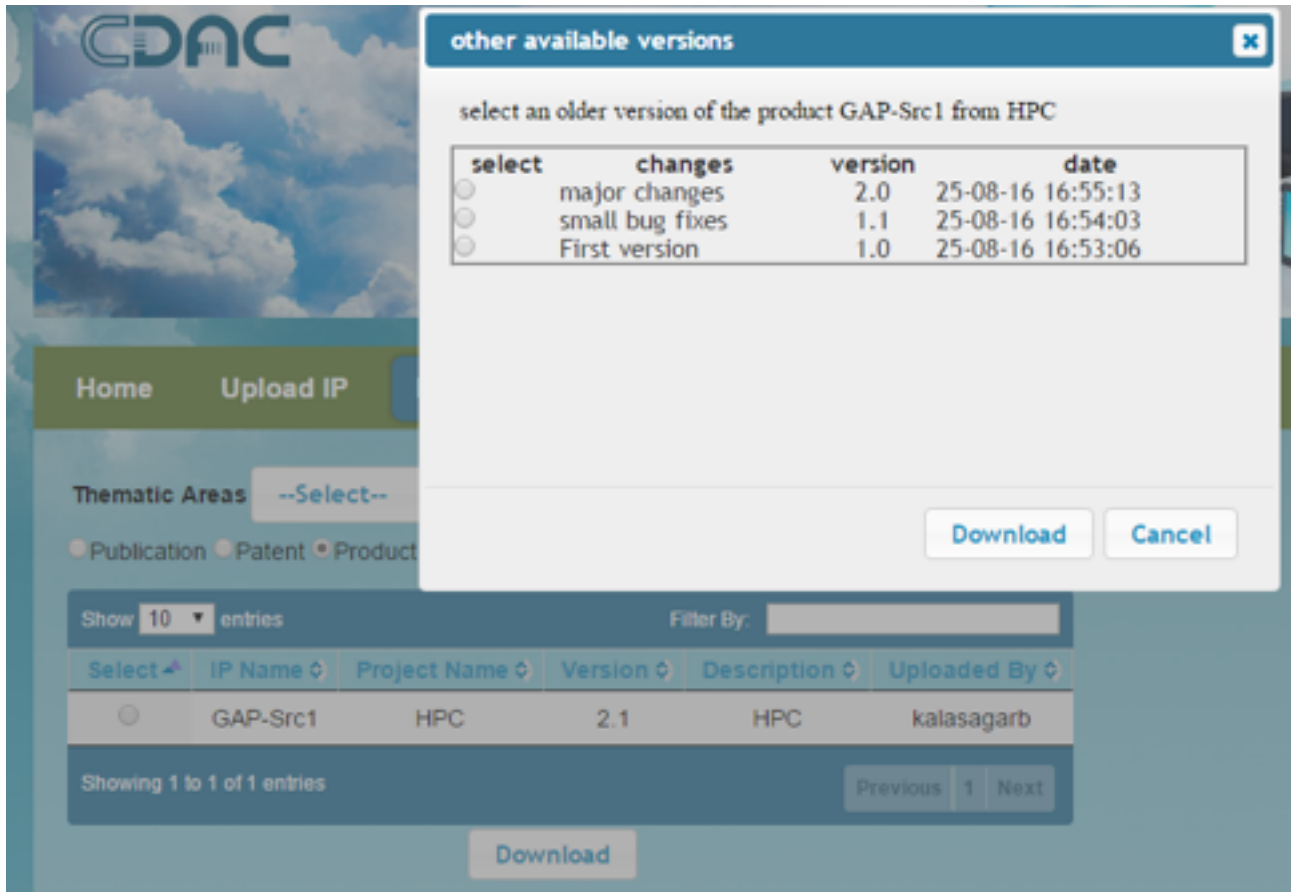
The screenshot shows a web application interface for uploading Intellectual Property (IP). The top navigation bar includes 'Home', 'Upload IP' (highlighted), 'Download IP', 'Help', and 'Logout'. A user greeting 'Welcome kalasagarb' is visible on the right. A left sidebar contains navigation options: 'Create Project', 'Upload IP' (highlighted), 'Update IP', and 'Download IP'. The main content area is titled 'Upload IP' and contains a form with the following fields:

Upload IP	
Thematic Area	High Performance ... ▾
Projects	HPC ▾
IP Type	Publication ▾
Conference Name	<input type="text"/>
Title	<input type="text"/>
author	<input type="text"/>
Co-Authors	<input type="text"/>
Date	<input type="text"/>
Conf Type	National ▾
IP Name	<input type="text"/>
select IP	<input type="button" value="Choose File"/> No file chosen

Update IP

- Update overwrites the existing IP information
- Update of Software Product request for its version
 - Versioning is applicable only for Software Products
 - Original IP is stored in CDAC_Backupcontainer
 - Updated software product or the latest version is stored in CDAC_Container

Software Versioning



The screenshot displays a web interface for software versioning. A modal dialog titled "other available versions" is open, prompting the user to "select an older version of the product GAP-Src1 from HPC". The dialog contains a table with the following data:

select	changes	version	date
<input type="radio"/>	major changes	2.0	25-08-16 16:55:13
<input type="radio"/>	small bug fixes	1.1	25-08-16 16:54:03
<input type="radio"/>	First version	1.0	25-08-16 16:53:06

Below the table are "Download" and "Cancel" buttons. In the background, the main interface shows a table with one entry:

Select	IP Name	Project Name	Version	Description	Uploaded By
<input type="radio"/>	GAP-Src1	HPC	2.1	HPC	kalasagarb

At the bottom of the main interface, there is a "Showing 1 to 1 of 1 entries" message and "Previous 1 Next" navigation links. A "Download" button is also visible at the bottom center of the page.

Future works

- Editing support for the some file formats
- Data encryption and decryption
- Developing the same for third party
- Role based authentication
- Login with google, Facebook etc...

Conclusion

- Cloud IPStore is the single point web access to all the Intellectual Properties (IP's) generated by an organization
 - Centralized repository of information on Software Product, Patents, Publications, Trademarks and Copyrights of any organization
 - Ease of usage
 - Ensures timely access to the IPs and avoids duplication of effort
 - Role based access to IP's
 - Reports generation from management perspective

Thank You!