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

Apache Tomcat (IP Store web application)

Thematic Areas

Projects

IP Management

Publication  Patent  Software  Trademark  Copyright

Upload  Download  Update  Search

OpenStack Swift  IP Store API  Database (MySQL)

SuMegha Infrastructure
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.
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

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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!