Presentation to WIPO Standing Committee on IT

Plenary Session, 22 to 26 Jun 1998

Singapore IP Office

Agenda

- Patent computerisation at the Singapore IP Office
- Enabling technologies for the provision of value-added information services on WIPONet

WIPONet & IP Digital Libraries

- Objectives
  - Facilitate access to and exchange of IP data by member states
  - Provide public access to information
- IP Office computerisation acts as building block for Singapore to contribute towards establishment of WIPOnet & IPDLs.
- Trademark and patent computerisation

Patent Registry Information SysteM (PRISM)

Patent Registry Information System

Features:

- A workflow and electronic document-based system for patent processing
- Electronic submission of applications and documents :
  - ✓ via diskettes
  - ✓ via the Internet

Patent Registry Information System

Features:

- Integrates with MS Office, Lotus Notes, Internet browsers etc allowing single point of access for staff of IP Office
- Information dissemination via Internet web pages and CD-ROMs (Patent Journal)

Patent Registry Information System

Online Internet Services for registered users :

- ✓Renewal of patents
- ✓Change of addresses
- ✓Patent application and document submissions
- ✓Enquiry services of IPDL
  - Structured bibliographical data
  - Abstracts, Specifications and drawings
  - Patent Register

Patent Registry Information System

Secured Online Services built on National Infrastructure for:

- Electronic Identification (IEI)
  - ✓ Certified keys (Electronic ID)
  - ✓ Authentication, Confidentiality, Message Integrity, Non-repudiation
  - ✓ Certificate Management Services (NETRUST)
- Electronic Commerce

Patent Registry Information System

- Input/Output Formats Supported
  - ✓ASCII text, RTF and SGML for Text
  - ✓TIFF, CCITT Group 3 & 4 and PDF for Images
  - ✓Specialised documentation to be submitted as Images
- WIPO Standards Supported
  - ✓WIPO ST.32, ST.10, ST.40

Patent Registry Information System

Status

- ✓ Tender called in Jan/ Feb 1998
- ✓ Currently under evaluation and award is expected by the 3rd quarter of 1998
- ✓ Three phase deployment expected from 3Qtr 1999 to early 2001

Agenda

- Patent computerisation at the Singapore IP Office
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Technologies for WIPONet

- **Domain-Specific Patent Search**
  - **Protein Patent Query System using Kleisli**
- Cross-Lingual Search
- Natural Language/Concept Search

Domain-Specific Patent Search

- A search tool accessing distributed IP Digital Libraries
- Solution to problems in BioInformatics commonly require:
  - –Access to data sources that are:
    - •highly heterogeneous
    - •geographically distributed
    - •highly complex in structure
    - •constantly evolving and high in volume
  - –Involvement of multiple carefully sequenced steps
  - –Information to be passed smoothly between the steps

Domain-Specific Patent Search

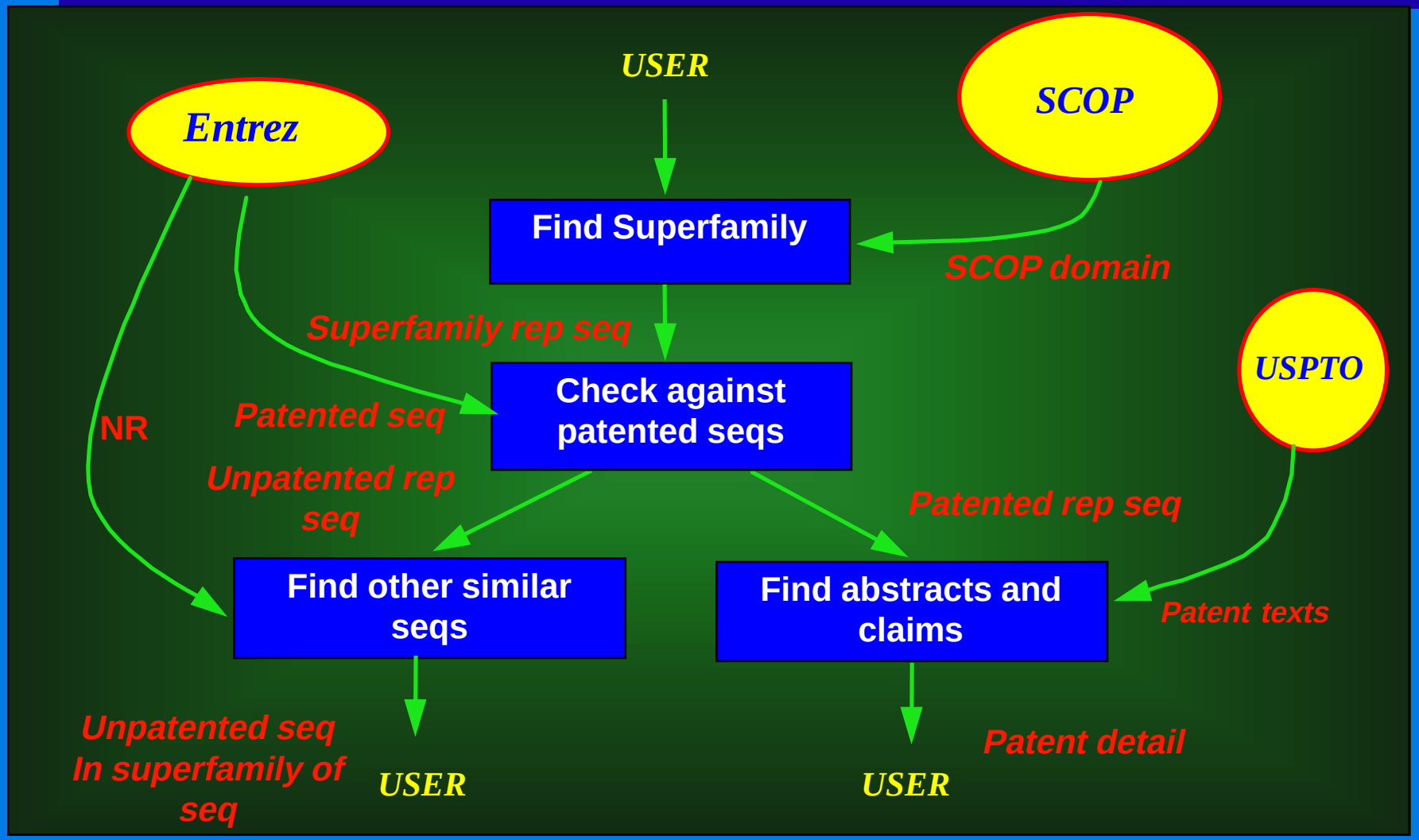
Our Technologies...

- ***Kleisli System***
- Modern query language
  - Theory
  - Implementation
  - Application
- Database integration technology

A Protein Patent Query System

- Seeks to answer 3 important questions:
  - Is my protein sequence patented?
  - What are the prior arts?
  - How to broaden my patent claims?
- Example:
  - a pharmaceutical company deciding what protein sequences to work on first, from a very large choice of sequences.

A Protein Patent Query System



A Protein Patent Query System

- A demo of the system:
  - http://adenine.krdl.org.sg:8080/examples/patent/

Technologies for WIPONet

- Domain-Specific Patent Search
- **Cross-Lingual Search**
- Natural Language/Concept Search

Cross-Lingual Search

- Need to search for patents filed
  - in different languages
  - in different countries, particularly the Asian countries
  - through single-language query

    e.g. inventor in US ascertaining if his invention, that has a potential market in Thailand or Indonesia, has already been patented in these countries.

Cross-Lingual Search
Our Technologies...

- Cross-Lingual Information Retrieval
  - Current research focusing on Asian languages and English (e.g. Malay, Indonesian, Thai etc.)
- Cross-Language Information Navigation Services on the Internet/WWW Trial
  - Kent Ridge Digital Lab (our National IT R&D arm) -
    - Korea Advanced Institute of Science and Technology (KAIST)
    - Nippon Telegraph and Telephone Corporation (NTT)

Technologies for WIPONet

- Domain-Specific Patent Search
- Cross-Lingual Search
- **Natural Language/Concept Search**

Natural Language/Concept Search

- Beyond key-word searching.
- Overcomes difficulties in query formulation of many existing patent search engines.
- Processes on full sentence or paragraph queries.
- Returns not only what we asked for, but also what we meant to ask for.

Natural Language/Concept Search
Our Technologies...

- Text Mining technologies
  - Concept extraction
  - Text understanding
  - Ontology discovery
  - Link analysis
  - Meaning representation

Conclusion

- Building on its computerisation experience, the Singapore IP Office is looking into integrating various enabling technologies to provide value-added information services not just to meet its own purposes, but also to help realise the WIPONet and IPDL visions.

Thank you for your attention