



Protégé:
Past, Present, and Future

Ray Ferguson
Stanford

Past

- Ancient History (1985-1997)
 - Mark Musen’s Thesis
 - Protégé-II, Protégé/Win
 - “Workshops” 1-2
- Modern Era (1997-2003)
 - Protégé in Java
 - Workshops 3-6

Mark's Thesis

- PROTÉGÉ system
- Developed as a tool for building knowledge-acquisition tools (a *meta-tool*) for medical planning applications
- Hardcoded *Ontology* (or *meta-ontology*) geared for planning applications
- Written in Lisp, Ran on Lisp machines
- User community: ~1

Protégé-II

- Generic meta-tool
 - No hardcoded ontology
 - No assumptions about “planning”
- Constructed as three distinct applications:
 - ontology editing
 - form customization
 - instance creation
- Written in Objective-C, Lisp..., Ran in NextStep
- User community ~10

“Workshop” 1 – June 1995

Pavia, IT

- Four guys from four different countries meeting in a pizza restaurant
- Conclusions:
 - The pizza in Italy is really good
 - Too much Chianti makes discussing ontologies difficult

Protégé/Win

- DARPA funding
 - required MS Windows reimplementation
- Protégé/Win
 - Same three applications as Protégé-II
 - Written in C++, ran on Windows 95+
- User community ~100

“Workshop” 2 – March 1996

Stanford, US

- Decided to re-implement Protégé/Win as a framework into which user-created *plug-ins* could be added.
 - domain-specific *slot widgets*
 - read/write data to other file formats
- Decided to adopt Java programming language

Workshop 3 – Sept. 1997

Lidingö, SE – Henrik Eriksson

- Prototype of new system: Protégé/Java
- Described ability to add tabs
- Subsequently decided...
 - We haven't gone "far enough" to integrate with other knowledge-base systems such as Ontolingua, CYC, and Loom
 - To adopt Generic Frame Protocol (OKBC) as our *knowledge model*
 - Throw away previous work and start over

Workshop 4 – July 1999

Linköping, SE – Henrik Eriksson

- Protégé-2000 Release 1.0
- Users demonstrated:
 - new domain independent slot widgets
 - tab widgets

Workshop 5 – July 2001

Newcastle, UK – Neil Jones

- Protégé-2000 1.6 (almost) released
- Free
- Open source
- Growing and diverse user community
 - 1000 registered users

Workshop 6 – July 2003

Manchester, UK – Alan Rector



- Protégé-2000 1.9 (almost) released
 - Protégé 2.0 promised for “fall 2003”
 - delivered in February, 2004
- Multiuser client & server
- Reimplemented Diagram/GraphWidget
- OWL Plugin Beta
- Almost 10000 registered users

Present

- Staff
- Mailing Lists
- User community
- Funding
- Release schedule
 - Since last workshop
 - Going forward

Protégé Team

- Research

- Monica Crubézy
- Olivier Dameron  semantic web tech, modeling principles
- Holger Knublauch
- Natasha Noy
- Daniel Rubin  biomedicine, imaging, NLP
- Samson Tu

- Administration

- Ted Hopper  making sure things run smoothly

- Development

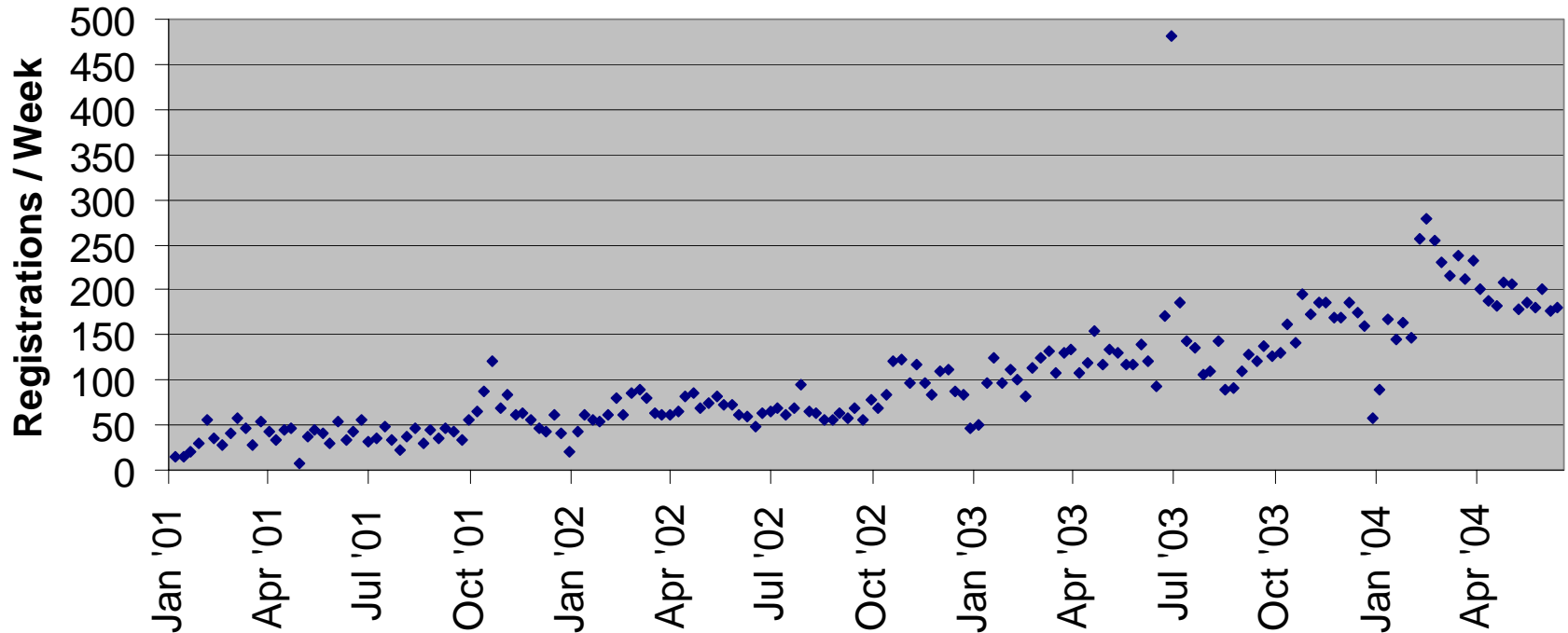
- Ray Ferguson
- Jennifer Vendetti

Mailing Lists

- protege-discussion
 - 2300 members
 - 9700 messages
- Created protege-owl mailing list
- Messages viewable as newsgroups, html
<http://gmane.org>

User Community

Protege Weekly Registration Totals

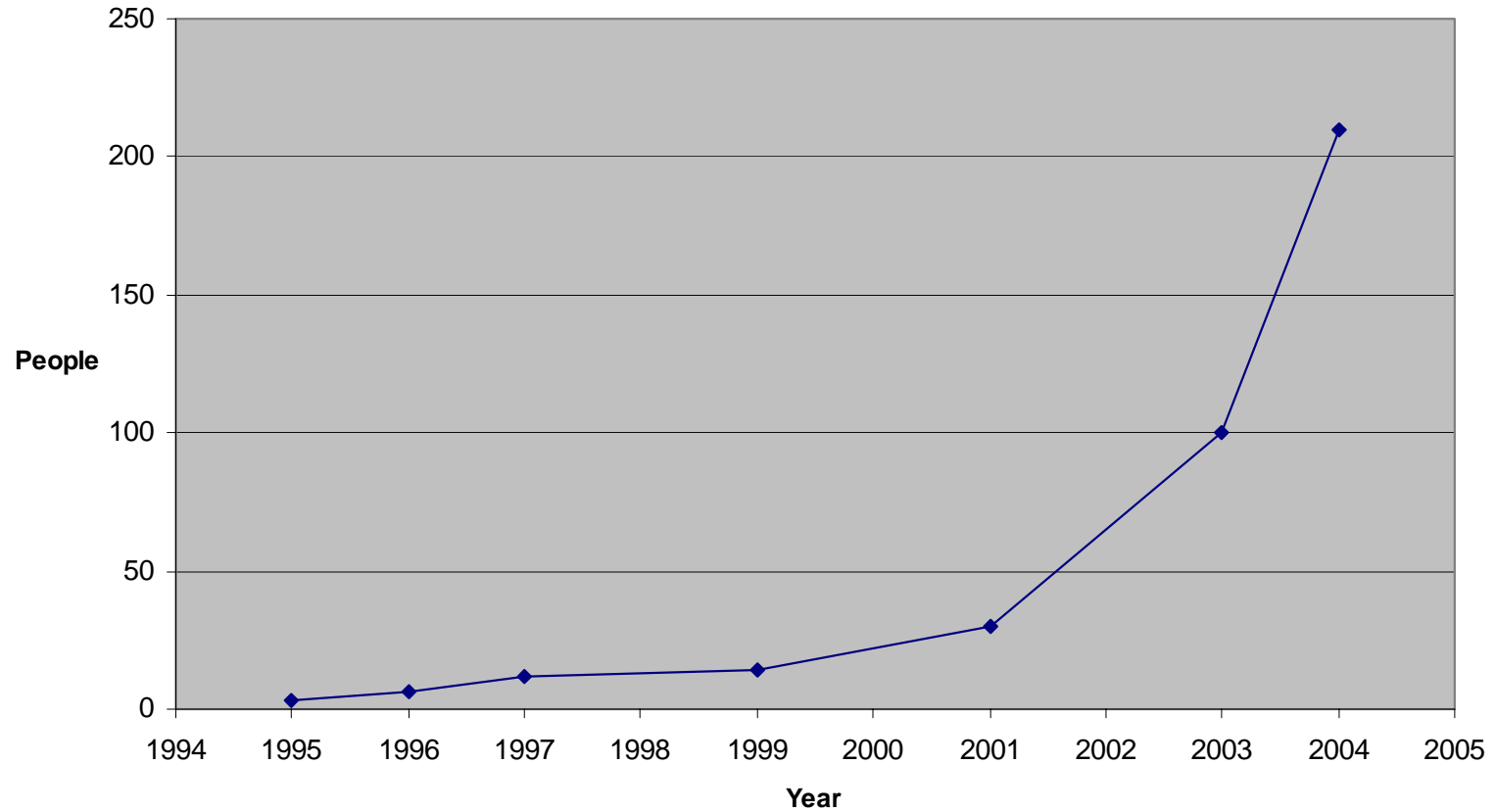


Total Registered Users: ~20000

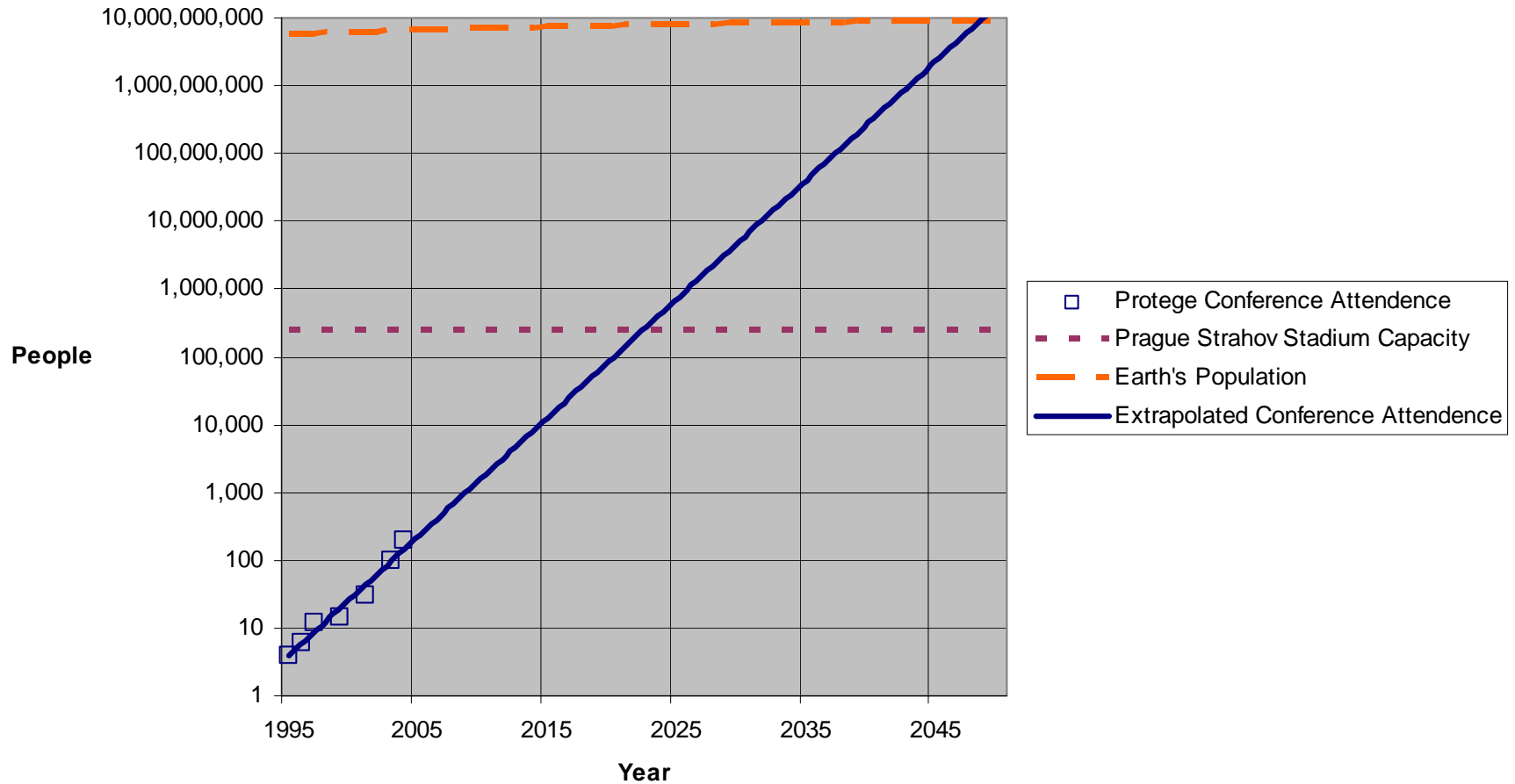
2004 Conference Attendees

Academic	75
Commercial	72
Government	45
Non-Profit	17

Conference Attendance



Extrapolated Conference Attendance



Funding

- National Library of Medicine
 - Resource Grant: “National Resource for Biomedical Ontologies and Knowledge Bases”
- National Cancer Institute Center for Bioinformatics
 - Development Contract
- Protege Affiliates:
 - Daimler-Chrysler  

Since Last Workshop

- Release 2.0 & 2.1
- Multiuser client & server
- Support for ~5M frames
- Web Browser Interface
- OWL Support
- Improved support for plugins
 - Bundling
 - Isolation
 - Built-in About Box and Documentation support

Future

- Continuing evolution of standard frame-based and OWL Plugin systems
- User-Interface Improvements
- Infrastructure Improvements
- Schedule “Improvements”

Core and OWL Plugin Systems

- OWL Plugin DL support layered on top of the core OKBC frame support
 - Allows conversion between two systems
 - Poses a number of development challenges
 - Provides advantages of giving users:
 - Choice of simpler frame-based or DL interface for editing OWL
 - Access to a variety of plugins
- Plan continued parallel system development and evolution

Retirement Announcement



User Interface Improvements

- Application Changes
 - Cleaner
 - More Attractive
 - More Professional
 - Easier to Learn
 - Easier to Navigate
- Web Site Changes
 - “ditto”

CLASS BROWSER

FOR PROJECT: Newspaper

DISPLAY: Class Hierarchy by Subclass

- .THING
 - .SYSTEM-CLASS
 - Author
 - News_Service (2)
 - Columnist (2)
 - Editor (4)**
 - Reporter (3)
 - Content
 - Layout_info
 - Library (1)
 - Newspaper (6)
 - Organization (1)
 - Person
 - Employee
 - Columnist (2)
 - Editor (4)**
 - Reporter (3)
 - Salesperson (1)
 - Manager (3)

INSTANCE LIST

FOR CLASS: Editor

LIST INSTANCES BY: name

- Chief Honcho
- Mr. Science
- Ms. Gardiner
- Sports Nut

CLASS EDITOR

FOR CLASS: Editor

NAME: Editor ROLE: Concrete

DOCUMENTATION: Editors are responsible for the content of sections

CONSTRAINTS: editor-employees-salary-c

TEMPLATE SLOTS:

NAME	TYPE	CARDINALITY	OTHER FACETS
sections	Instance	multiple	classes=[Section]
responsible_for	Instance	multiple	classes=[Employee]
name	String	single	
salary	Float	single	
date_hired	String	single	
current_job_title	String	single	
other_information	String	single	
phone_number	String	single	

SUPERCLASSES FOR SELECTED CLASS:

- Author
- Employee

Infrastructure Improvements

- **More Flexible Inclusion**
 - Extensions of included frames
 - Database inclusion
- **Namespaces**
 - already in OWL Plugin
- **Internationalization Support**
 - Localization
 - Alternate names & values

Schedule “Improvements”

- *Now aim for two releases/year*
 - *Before conference (June)*
 - *~6 months later*
- *Betas releases roughly weekly*
- *Compromise between:*
 - *“constant updates”*
 - *“too long before bugs get fixed”*

Conference 7 *Wish List*

- *???* (Come back on Friday at 11:00 am)