

Quero

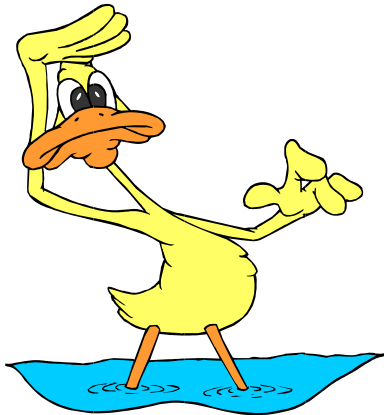
The New Web Experience

<http://www.quero.at/>

DI Viktor Krammer

Quero

Qui quaerit, invenit.



Biblia Vulgata, Lc 11, 9

Quero About Viktor Krammer

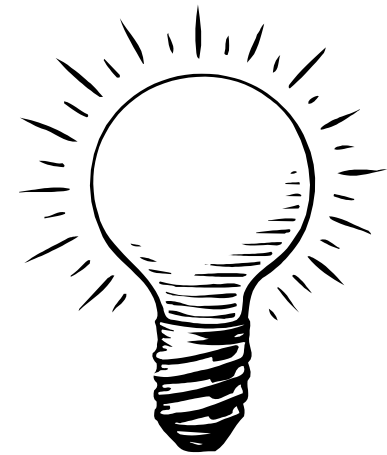
- Since **2004** Researcher in the research association EC3 E-Commerce Competence Center Web Mining and Data Warehousing
- **1999-2004** MSc in Computer Science TU Vienna
- **2001-2004** IT Freelancer for Frequentis, Siemens Austria, Bull
- Since **2004** developing Quero Toolbar
Realization of a search engine independent research project (PhD thesis at the TU Vienna) as a product

Quero Agenda

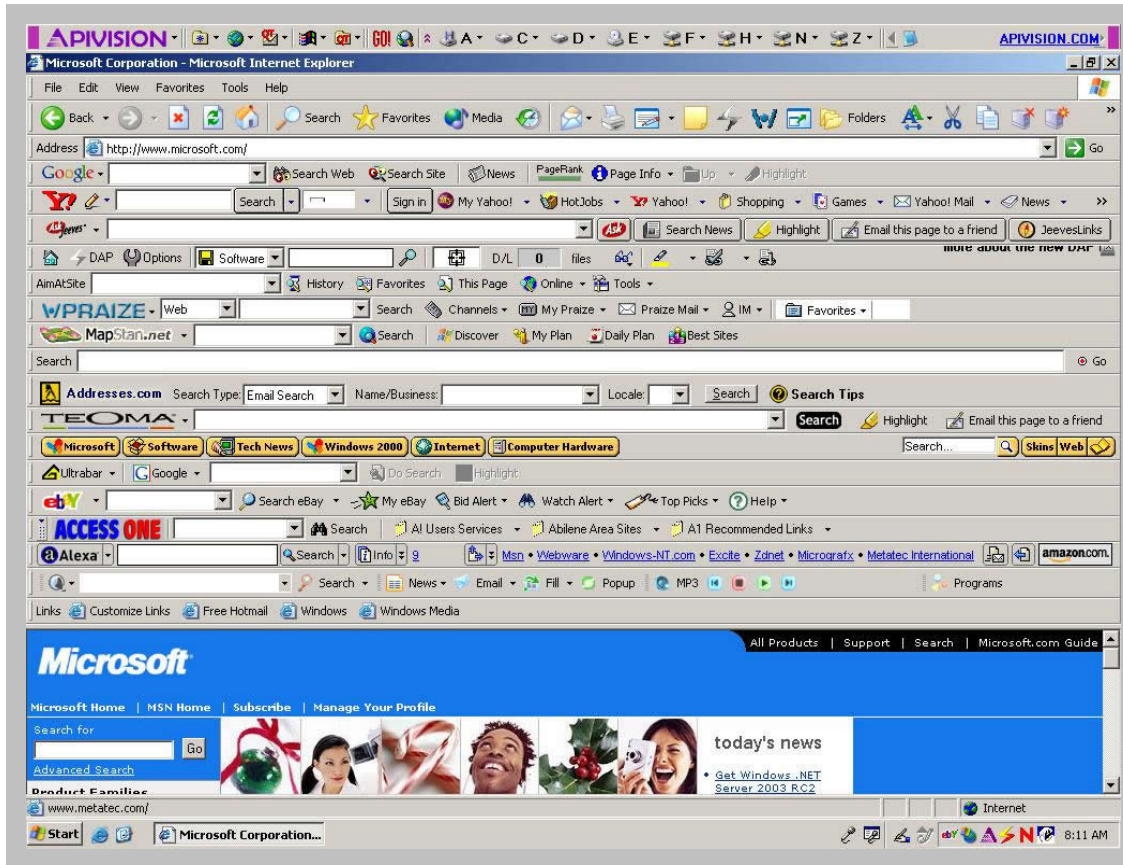
- **Innovation Quero Toolbar**
Usability, Security, Privacy
- **Technology**
Windows Internet Explorer, Architecture
- **Software Quality**
Development Model, Quality Measures, Challenges

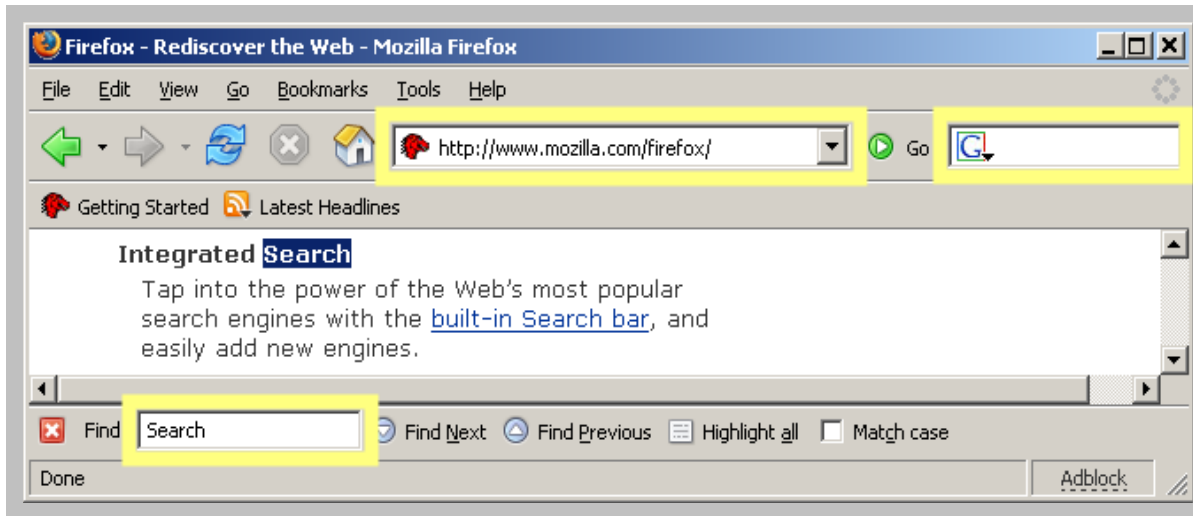
Quero **The Idea**

- Search directly from the browser
- Innovative user interface
- New features for IE
- More secure Web browsing
- Opt-out of online advertisement
- Privacy inside



Quero Toolbar Chaos in IE6



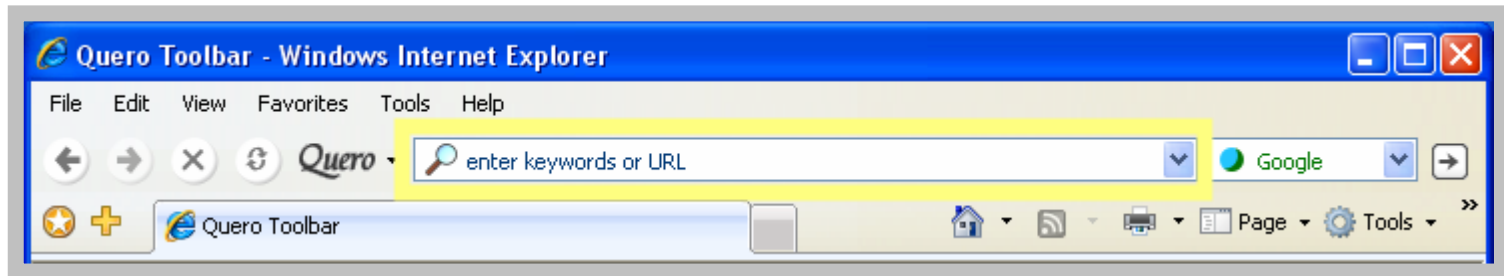


- Multiple input boxes
- Search box shares screen real estate with address bar
- Different keyboard shortcuts for every field

Quero Solution of Quero Toolbar

1 Input Box for 3 Use Cases:

- Navigation (address bar)
- Search the Web (search bar)
- Find on Current Page (search dialog in IE)



Quero

How Quero works

Syntactical recognition of search type

- Keyword **ORF**
- Address **ORF.at**
- Find on page **/orf**

Complex search queries

- Railway connection **Wien – Linz**



Quero International Domain Names

- Client-side extension of DNS allowing non-ASCII characters in domain names

Example: www.oberösterreich.at

- RFC-compliant implementation of IDNA standards (Internationalized Domain Names in Applications)

- Protection from address spoofing attacks

Example: The Homograph Attack

<http://www.paypal.com/>

a ... U+0061 Latin Small Letter a

a ... U+0430 Cyrillic Small Letter а



Phishing

Quero Address Spoofing Defense

- Visualization Techniques
 - Highlighting characters that belong to another character set
 - Highlighting the „core“ domain (most relevant part of the URL)
 - IDN and digit indicator for example in www.microsoft.com
 - Lock icon for secure connections
 - UI Improvements
 - Security Warnings for suspicious addresses
-

Quero Opt-Out of Online Ads

- Pop-Up Blocker
- Hide Flash ads with a keyboard shortcut
- Content Filter
 - automatically filters
 - Flash ads
 - Banner ads (v3)
 - Ads by Google (v3)
 - IntelliTXT ads (v3)
 - Layer ads

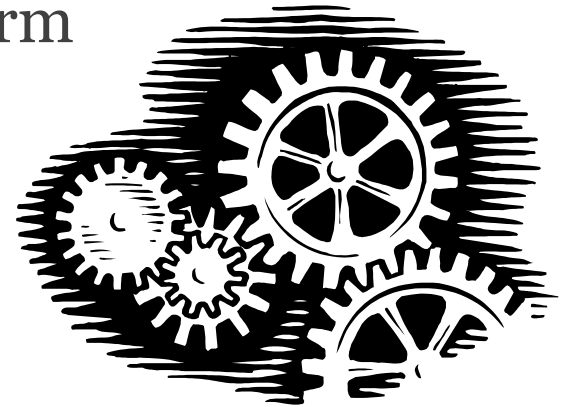


Quero Agenda

- Innovation Quero Toolbar
Usability, Security, Privacy
- **Technology**
Windows Internet Explorer, Architecture
- Software Quality
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Quero Employed Technologies

- Microsoft Windows
- Microsoft Visual C++
- Architectures COM and Browser Helper Object
- Frameworks ATL and WTL
- Windows Internet Explorer Platform



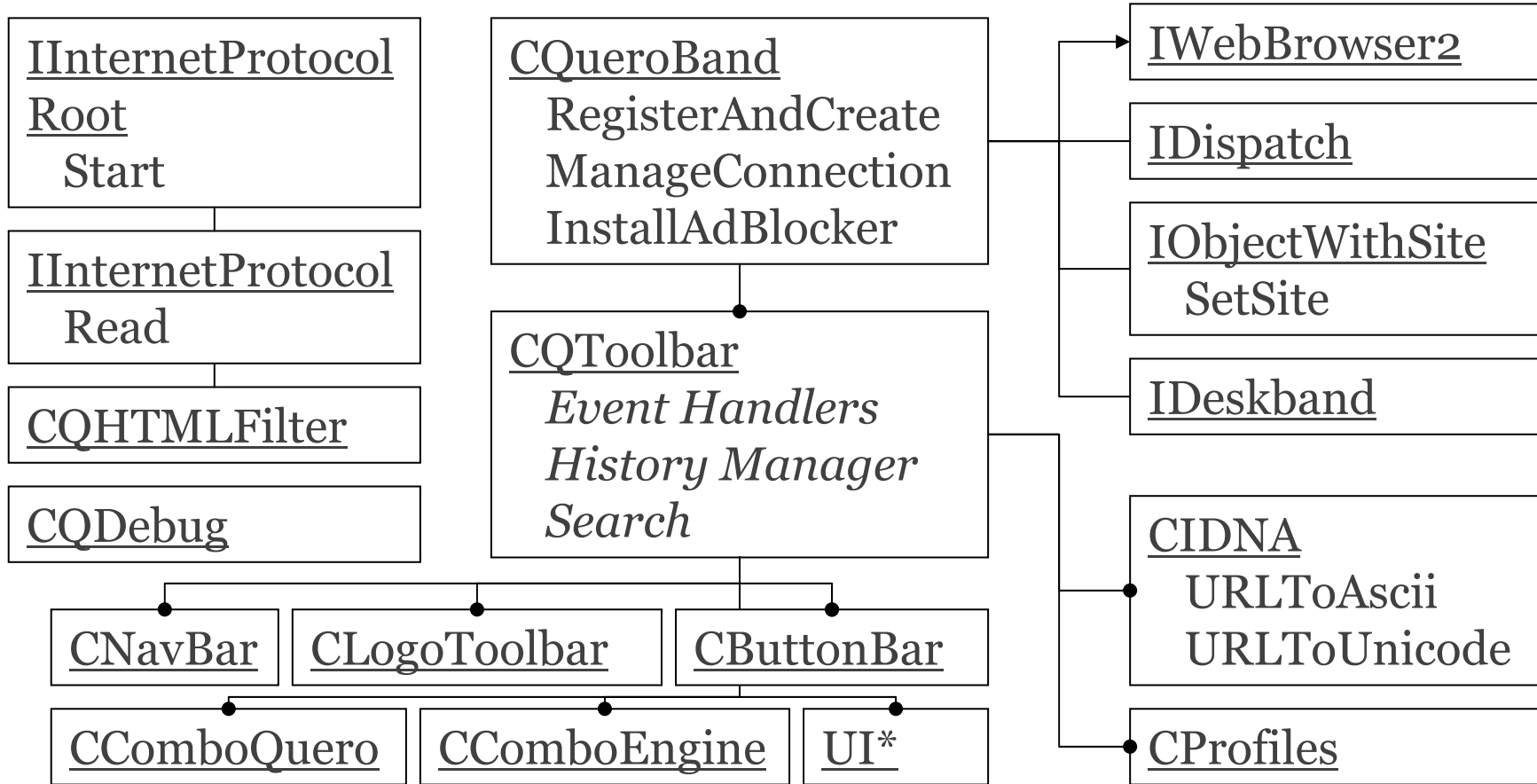
Quero **Toolbar Version 2**

- OS support: Windows 98 to Windows 2003
- Two language versions: English, German
- > 20.000 Lines Of Code (LOC)
- > 10.000 downloads between 2005/01 and 2006/01
- CNET Review: 4 of 5 stars
- Tucows Rating: 4 of 5 cows

Version 3

- Support for IE7
- Improved Ad Blocker

Quero Architecture



Quero Agenda

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- **Software Quality**
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Quero **Development Model**

Adoption of the agile software development model

Extreme Programming (XP)

- No requirements specification!
- Feature requests during the development (feedback emails, newsgroups, current development of the market)
- Frequent refactoring
- Continuous architectural improvements
- Short release cycles

Quero Quality Measures

- Structured and object-oriented programming
- Common code base for all offered versions
- Source code documentation
- Version archive
- Detailed change log
- Bug list (for Quero and IE)
- Collecting feature requests and ideas

Quero Testing

- Intensive testing before every release
- Beta testing (Quero Toolbar 3)
- Black/white box test cases for the content filter
- Concurrency tests with the help of Quero Launcher
- Debug Facility Class (CQDebug)
 - Protocols events and state in a log
 - Output in the Quero Debug Console
 - Switch between release and debug build

Quero Security

- Quero uses secure string functions to avoid Buffer Overflow Exploits (BOE)

Example:

```
TCHAR currentURL[MAXURLLENGTH];
```

```
// Unsafe
```

```
    _tcsncpy(currentURL,url);
```

```
    _tcsncpy(currentURL,url,MAXURLLENGTH);
```

```
// Safe
```

```
    StringCbCopy(currentURL,sizeof currentURL,url);
```

Quero Test Environment

- Conservative usage of the heap to prevent memory leaks and BOE
- Test Environment
 - 1 Development PC
 - 3 Test PCs running different versions of Windows and IE
 - Leveraging VM software

Quero Challenges

- Growing Complexity
- Concurrency (multi-threaded, multi-process)
- Synchronization (IPC)
- Changes to the IE Platform (IE7)
- Myriad of Versions (Windows, IE)
- Insufficient IE Platform Support (e.g. for Ad Blocking, Tabbed Browsing, UI Customization)

Quero



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