



Leibniz-Institut für  
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SambaXP 2015



# Introducing Bebop to Samba 4

Torsten Kurbad

Leibniz-Institut für Wissensmedien Tübingen

[t.kurbad@iwm-tuebingen.de](mailto:t.kurbad@iwm-tuebingen.de)

# Outline

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# Outline

## Introduction

# Introduction

## Bebop as a Musical Style

**Bebop** or **bop** is a style of jazz characterized by a *fast tempo*, instrumental virtuosity and *improvisation* based on the *combination of harmonic structure* and sometimes *references* to the melody. [...]

This style of jazz ultimately became synonymous with *modern jazz* [...]

*Source: Wikipedia*

How does that definition translate to a software?

# Introduction

## About my Employer

- Leibniz-Institut für Wissensmedien / Knowledge Media Research Center
- Non-profit multidisciplinary extra-faculty research institute situated in Tübingen, Germany
- Main field of research: Utilization of **digital media** in **teaching and learning**
- Founded in 2001 with about 30 employees, most of them (cognitive) psychologists.
- 2014: 185 employees, i.p. 81 scientists of multiple disciplines, 38 people in service areas, 66 student assistants

# Introduction

## About my Employer

*Student assistants...*

... have very short-lived work contracts

... are encouraged to try out different fields of research,  
thus do frequent work group hopping

→ *High **fluctuation** poses challenges for both HR and IT*

# Introduction

## About me

- Computer scientist
- First contact with Linux in 1995
- Joined the IWM in January 2004
- Hired as Python programmer, now almost full time server administrator
- Advocate of open source solutions



# Outline

## Development of Our Samba Domain

# Development of Our Samba Domain

## January 2004 - Situation

- Windows NT style domain with roaming profiles on the Linux DC based on **Samba 2**
- **Disjunct** user databases for almost every machine/service

# Development of Our Samba Domain

## January 2004 - Assessment

- *Substantially outdated Samba version*
- *Various username / password combinations per user*
- *No unified user or group management*

# Development of Our Samba Domain

## End of 2004 – Situation Changes

- Windows NT style domain based on **Samba 3**, **OpenLDAP**, and **MIT Krb5**
- POSIX groups in **OpenLDAP**
- **Unified** Windows / Linux **authentication** utilizing Samba, pam\_ldap, nss\_ldap, and pam\_krb5
- **Several** services still utilizing **isolated** user databases
- Samba **user management** with **smb-ldap-tools**

# Development of Our Samba Domain

## End of 2004 - Assessment

- *Up-to-date Samba version*
- *Fewer username / password combinations per user*
- *Partly unified user / group management, not usable by laymen\**

\***layman** *pl.:* laymen = non-geek

# Development of Our Samba Domain

## 2008 – Situation Changes

- **Some** (non LDAP-aware) services still utilizing **isolated** user databases
- Samba **user** / Posix **group management** with ***Bebop***

# Development of Our Samba Domain

## 2008 - Assessment

- *Samba 3 still up-to-date, but growing demand for AD*
  
- ***Mostly unified user / group management, usable by laymen***

# Development of Our Samba Domain

## Summer 2014 – Situation Changes

- NT style domain **upgraded** to **Active Directory** based on Samba 4.0.18
- **Unified** Windows /Linux **authentication** based on **Samba AD, nslcd, and pam\_krb5**
- **Most** services utilizing **AD** user / group database
- **But:** Samba AD **user / group management** with **samba-tool** and **bash scripts**



# Development of Our Samba Domain

## Summer 2014 - Assessment

- *Up-to-date Samba version*
- *Mostly unified user / group management, again **not** usable by laymen*

# Development of Our Samba Domain

## 2015 – Situation Changes

- **Active Directory domain** upgraded to **Samba 4.1.x**
- **RODC** in DMZ, based on **Samba 4.1.x**, to enable domain authentication for DMZ / external services
- **AD user / group management** with ***Bebop***

# Development of Our Samba Domain

## 2015 - Assessment

- *Up-to-date Samba version*
- ***Unified user / group management, usable by laymen***

# Development of our Samba Domain

## Future Plans

- Let **all** services utilize AD user / group database!
- *Exactly one* username / password per user (SSO?)

# Outline

## A Short History of Bebop and its Predecessor(s)

# A Short History of Bebop and its Predecessor(s)

## 2002-2007 - VisualGroup

*Group-aware, document-centered collaboration utility*

- Written in **Python2.1**, based on the **Zope2** web framework
- Presented documents in a **folder view**
- Supported **user logins, ACLs**, and **versioning** of all content, but **user database** entirely **isolated**
- All content was being held in the **Zope object database**
- **All operations** done **server side**, i.e. no Javascript
- Used to store **publications** and internal **documents**
- Sorry, no screenshot survived :-)

# A Short History of Bebop and its Predecessor(s)

## 2002-2007 - VisualGroup

Pros	Cons
+ <b>Intuitive</b> web interface to manage documents	- <b>Intuition</b> = programmer's <b>intention</b> , difficult to apply to a large group of people
+ Transparent <b>versioning</b> of all content	- With more and more content, the user interface became <b>increasingly slower</b>
+ <b>Transactional</b> operations	- <b>Internal user database</b> and login scheme → limited interconnection possibilities
+ <b>Wide variety</b> of supported platforms/browsers	- Based on <b>obsolete</b> versions of Python and Zope

# A Short History of Bebop and its Predecessor(s)

## 2006-Today – Bebop 1.0

*Group-aware, collaboration-centered document and content management utility*

- Written in **Python2.4**, based on an early development snapshot of the **Zope3** framework
- Supports **different views** on the **same content**, e.g. Wiki, Blog, folder structure → "*content improvisation*"
- **AJAX** interface including **WYSIWYG editor**
- Highly **configurable** → most features can be enabled or disabled on demand
- All content is being held in the **Zope object database**
- Supports **LDAP** user **authentication**, recently adapted to Active Directory



# A Short History of Bebop and its Predecessor(s)

## 2006-Today – Bebop 1.0

### *Screenshot of Blog view*

**MediaLog** Profile Logout Help

Blog Folder News Sitemap


Portraits Icons WYSIWYG

Home Add Contribution RSS


Recent Where Who When

Results 1 - 18 of 265 Pages: 1 2 3 4 ... 15

**February 2006**

 **Viel Erfolg** Sebastian Staendecke 9. February 2006 00:18  
An alle Mitstudenten: viel Erfolg bei der heutigen Klausur!

Where: Home » Teilnehmer » Sebastian Staendecke Full View Add Comment

 **Frage: Massenkommunikation** Anton Siegordner 7. February 2006 15:58  
Die Kriterien der Massenkommunikation: indirekt, einseitig, öffentlich, an ein disperses Publikum. Wie könnte das Medium TV mit seinen umfangreichen Spezialangeboten, wie z.B. eine Liveshow, bei der Telefonanrufe (aus dem dispersen Publikum angenommen und beantwortet werden) hier klassifiziert werden? --> Rollenwechsel von Aussagendem und Aufnehmenden. Den das Medium TV ist doch zweifelsohne ein Massenmedium!?! Gib [More...](#)

Search

search Go

Abstract: 54 words

**Calendar**

← May 2015 →

Mo	Tu	We	Th	Fr	Sa	Su
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

# A Short History of Bebop and its Predecessor(s)

## 2006-Today – Bebop 1.0


### *Screenshot of Wiki view*

The screenshot displays the 'Second Life Wiki' interface. At the top, there is a dark green header with the site name 'Second Life Wiki' on the left and navigation links 'Profile', 'Logout', and 'Help' on the right. Below the header, there are tabs for 'Wiki' and 'Folder'. The main content area features a 'Home' button on the left and 'Edit this Page', 'Info', and 'RSS' buttons on the right. The central part of the page is titled 'Index Page' and lists several topics: 'Abstimmung Sonja-Michael', 'Hochschulen / Unis / Weiterbildung', 'Dokumentation Studie 1 (Fallarbeit)', 'Anleitungen Second Life', 'Kurzhilfe\_Bebop-Wiki\_gekürzt.pdf', and 'Konzeptentwicklung Experiment 1'. A red-bordered box highlights the text '[Wand des Wissen]'. Below this, it says 'Bildungsinstitutionen + Ansprechpartner'. On the right side, there is a sidebar with a 'Topics' section listing 'SLTalk & Partner - L...', 'Anforderungen', 'Bots, AIML, Künstlic...', 'Dokumentation Studie...', and 'Anleitungen Second L...'. At the bottom of the sidebar, it says 'Powered by Bebop' and 'Zope Manage View'. The top right corner of the sidebar has icons for 'Portraits', 'Icons', and 'WYSIWYG'.

# A Short History of Bebop and its Predecessor(s)

## 2006-Today – Bebop 1.0

### *Screenshot of Folder view*

MediaLog  Profile Logout Help

Blog Folder News Sitemap  Portraits  Icons  WYSIWYG

Home Add

Items 1 - 4 of 4

	Name	Title	Last Author	Published	Modified	Action
<input type="checkbox"/>	📁 sitzungsmaterial	Sitzungen	Gast Gast	--	6/29/06 10:48 AM	Edit
<input type="checkbox"/>	📁 pruefungsvorbereitung	Prüfungsfragen	Anton Siegordner	--	2/7/06 3:58 PM	Edit
<input type="checkbox"/>	📁 Angeklickt	Angeklickt	Julia Jennen	--	2/3/06 2:29 PM	Edit
<input type="checkbox"/>	📁 Teilnehmer	Teilnehmer	Sandra Siglmüller	--	1/7/06 5:22 PM	Edit

Move

With the "Move" commands you can determine the order in which the folders are shown in the "Topics" menu to the left.

Topics

- ⊕ Sitzungen
- Prüfungsfragen
- Angeklickt
- ⊕ Teilnehmer

Powered by **Bebop**

[Zope Manage View](#)

# A Short History of Bebop and its Predecessor(s)

## 2006-Today – Bebop 1.0

Pros	Cons
+ <b>Flexible</b> web interface, based on user feedback and demands	- <b>Flexibility</b> = complexity We noticed that most users like it plain and simple (or began using Google docs)
+ Client side technologies for <b>faster response times</b>	- Content stored in object database → <b>large</b> and <b>slow</b>
+ Still very <b>popular</b> with our scientists	- Based on development snapshots and <b>obsolete</b> Python version → difficult to maintain
+ Allows <b>LDAP / AD authentication</b>	- Does <b>not</b> allow <b>manipulation</b> of LDAP / AD objects

# A Short History of Bebop and its Predecessor(s)

## Late 2007-Today – Bebop 2.0

*Group-aware, collaboration-centered document and content management utility*

- Written in **Python2.7**, based on release 3.5 of the **Zope3** framework
- **Combines** different views on the same content, based on the questions "*where*", "*when*", and "*who*"
- **Responsive** client side **ExtJS** interface
- Highly **configurable**
- Easily **extendable** by plugins
- **Large objects** stored in the **filesystem**
- Supports **LDAP** user authentication **and** (since 2008) **manipulation**, recently adapted to Active Directory

# A Short History of Bebop and its Predecessor(s)

## Late 2007-Today – Bebop 2.0

*Screenshot of Main Window*

The screenshot shows the main window of the Leibniz-Institut für Wissensmedien website. At the top, there is a header with the institute's name and a row of 20 small portrait photos of staff members, each with a name label below it. Below the header is a navigation bar with a search box and a 'Manage' button. The main content area is divided into several sections:


- WHERE:** A sidebar menu with categories like Personen, Produkte, Artikel, Bibliothekskatalog, Allgemeines, Arbeitsgruppen, Betriebsrat, Bibliothek, Abschlussarbeiten, Evaluation, FAQs, Gleichstellung, Nachrichten, Presse, Projekte, Promotion, Ressourcen, and Organisation & Verwaltung.
- Home:** A central section with a title 'Leibniz-Institut für Wissensmedien' and a paragraph: 'Im Informationssystem des Instituts für Wissensmedien finden Sie die folgenden Informationsangebote:'. Below this are three bullet points:
  - Personen:** Die Mitarbeiter des IWM und des Lehrstuhls für Angewandte Kognitionspsychologie und Medienpsychologie. Die Daten werden für das IWM von Herrn Hofmann verwaltet, für den Lehrstuhl von Frau Croizier.
  - Arbeitsergebnisse:** Die Arbeitsergebnisse bzw. Publikationen der Institutsmitarbeiter, die auf den Webseiten des Instituts und im Jahresbericht erscheinen sollen. Nachweise über neue Publikationen schicken Sie über FirstClass an die Konferenz "Publications".
  - Bezogene Artikel:** Die bezogenen Artikel und eingescannten Dokumente, die zentral von der Bibliothek gesammelt werden. Die meisten Dokumente stehen zum Download als PDF bereit. Die Suche im Dokumentenbestand erfolgt am besten über den Reiter "Artikel" und dann den Filterfeldern für Autoren, Titel etc. Jede Eingabe eines Filterwertes führt zur Aktualisierung der Trefferliste. Ansprechpartner für Bibliotheksangelegenheiten sind Bärbel Garsoffky und Kathrin Reinhardt.
- What's new?:** A section with an RSS icon and a list of recent news items, including 'Katharina Scheiter ins Editorial Board von Educational Research Review berufen', 'The emotional responses of browsing facebook: Happiness, envy, and the role of tie strength.', 'bild', 'Setting Up Your Shots: Great Camera Moves Every Filmmaker Should Know', 'Lernen in Bewegung', and 'Stellenausschreibung 2004-2015'.

# A Short History of Bebop and its Predecessor(s)

## Late 2007-Today - Bebop 2.0

### Screenshot of Persons Directory

Leibniz-Institut für Wissensmedien



aeitel afett... akiemke alevo... amuks aneu aoeberst aschanz ascholl aschu... athil... bbrucker bbutt... bgars... brenner cdem... cmats... csass... cscha... cschulz cwirth dflem...

WHERE

- Personen
- Produkte
- Artikel
- Bibliothekskatalog
- Allgemeines
- Arbeitsgruppen
- Betriebsrat
- Bibliothek
- Abschlussarbeiten
- Evaluation
- FAQs
- Gleichstellung
- Nachrichten
- Presse
- Projekte
- Promotion
- Ressourcen


Home Personen

Search Site... Login

Home Personen Bezogene Artikel Arbeitsergebnisse Bibliothekskatalog

Person	Organization	Division	Group	Member since
Type letters to filter persons...	Select to filter person	Select to filter person	Select to filter person	Type nums to year...
<input type="checkbox"/> Treiber, Kerstin	IWM	Wissenschaftlicher Be...		10/15/2014
<input type="checkbox"/> Dackermann, Tanja	IWM	Wissenschaftlicher Be...	Nachwuchsgruppe - ...	10/14/2014
<input type="checkbox"/> Werle, Dustin	IWM	Ehemalige	AG 2 - Cybermedia	10/06/2014
<input type="checkbox"/> Gabriel, Adrian	IWM	Wissenschaftlicher Be...		10/01/2014
<input type="checkbox"/> Meinhardt, Anna Lea	IWM	Wissenschaftlicher Be...	AG 5 - Design und Im...	10/01/2014

**Tanja Dackermann**



Mail: [t.dackermann@iwm-tuebingen.de](mailto:t.dackermann@iwm-tuebingen.de)  
Phone: +49 7071 979-265  
Room: 6.402

**Homefolder Items**

- [tdackermann\\_vc\\_de.html](#)
- [tdackermann\\_vc\\_en.html](#)
- [thumbnail.jpg](#)
- [www](#)

Add Person Remove Mail...

# A Short History of Bebop and its Predecessor(s)

## Late 2007-Today – Bebop 2.0

Pros	Cons
+ Web interface based on <i>combination</i> of <b>folders</b> and <b>logical</b> / "contextual" <b>views</b> "where", "when", "who"	- Based on now <b>obsolete</b> versions of Python and Zope3 → will soon become difficult to maintain
+ <b>Large content</b> objects stored in <b>filesystem</b> , database holds <i>references</i> only	- <b>Not always</b> very <b>responsive</b> → <i>faster</i> speed probably achievable by optimization
+ Highly <b>configurable</b> in many areas	- Larger <b>customizations</b> require Python <b>programming</b> skills
+ Supports <b>LDAP / AD auth</b> and <b>manipulation</b>	- Has to keep the Zope database in <b>sync</b> with the AD



# Outline

## Why Manage AD Users and Groups with Bebop?

# Why Manage Your AD with Bebop?

## Because...

... it's **easy**

... it's **open source**

... it's **flexible**, without being too complex

... it helps ensure proper **formatting** of AD fields

... it can help **reduce redundancies**

... it **reduces** the **workload** of both HR and IT

... it **reduces** type **errors**

... it provides you with a nice **web-based view** of your user / employee database

...

# Why Manage AD with Bebop?

Because...

→ *Allow me to demonstrate*

# Outline

## Live Demo

# Outline

## Other Use Cases of Bebop

# Other Use Cases of Bebop

## Examples

- Collection and management of **publications** and other **intellectual products**
  - Management of **libraries**
  - Management and display of **website(s)**
  - Management of (technical) **resources**
- *With all of the above in **one place**, accessible through a **single interface**, **exportable** in open standard formats*

# Outline

## Conclusion

# Conclusion

## Current State of Affairs

- Bebop 2.0 **in active use** for more than 7 years
  - Integral **part of our workflows**
  - Accepted by **both HR** and **IT** to manage employee / user data
  - **But:** Code base **outdated**, hard to maintain
  - **But:** Several **shortcomings** and **errors** surfacing in daily use
- *Would be nice to have a **successor...***



# Conclusion

## (Uncertain) Future Goals – Bebop 3.0?

- **Upgrade** code base to **Python 3.x**, recent versions of Zope3 (now **BlueBream**) and ExtJS (now **sencha**)
  - Improve code **optimization** for faster response times
  - Make it easier to **customize**
  - Use **external** data sources (like AD) **directly** instead of synchronizing them to the Zope database
  - Improve **testing** and test coverage
- *Unfortunately (too?) much effort for three programmers*

# Conclusion

## In Case You Want to Try out Bebop Yourself

*It's easy*

Check it out via subversion:

```
svn co http://svn.kmrc.de/projects/buildouts/bebop.minimal
```

Follow `README_AD.txt` to create a Bebop site and connect your Active Directory

For questions and suggestions, get in **touch**:

```
mailto:t.kurbad@iwm-tuebingen.de
```

# Conclusion

Thank **you** for your attention!