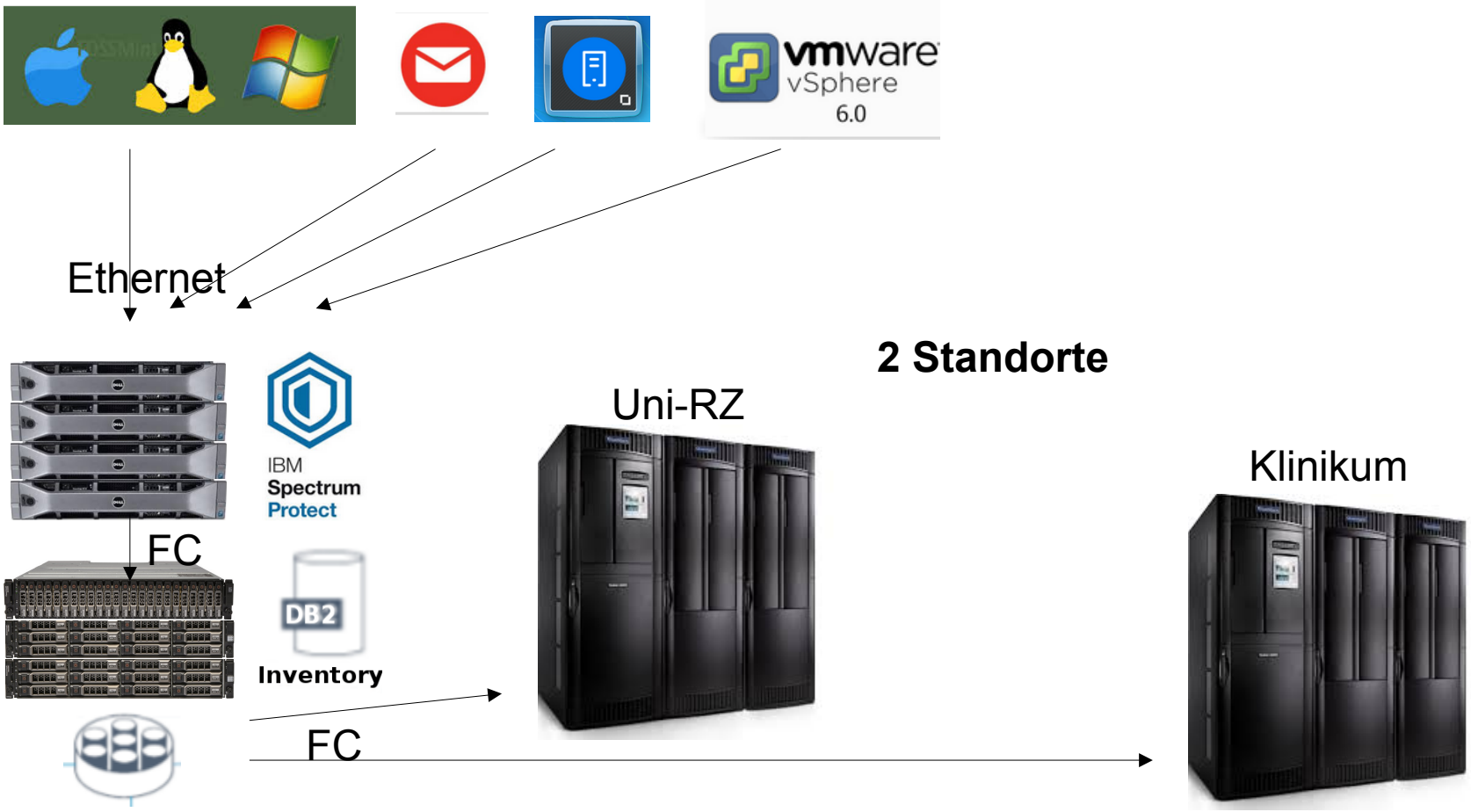
Universität Regensburg

M. Hartung
Rechenzentrum
Abteilung Zentrale Systeme

Aufbau des Backupsystems an der Uni Regensburg



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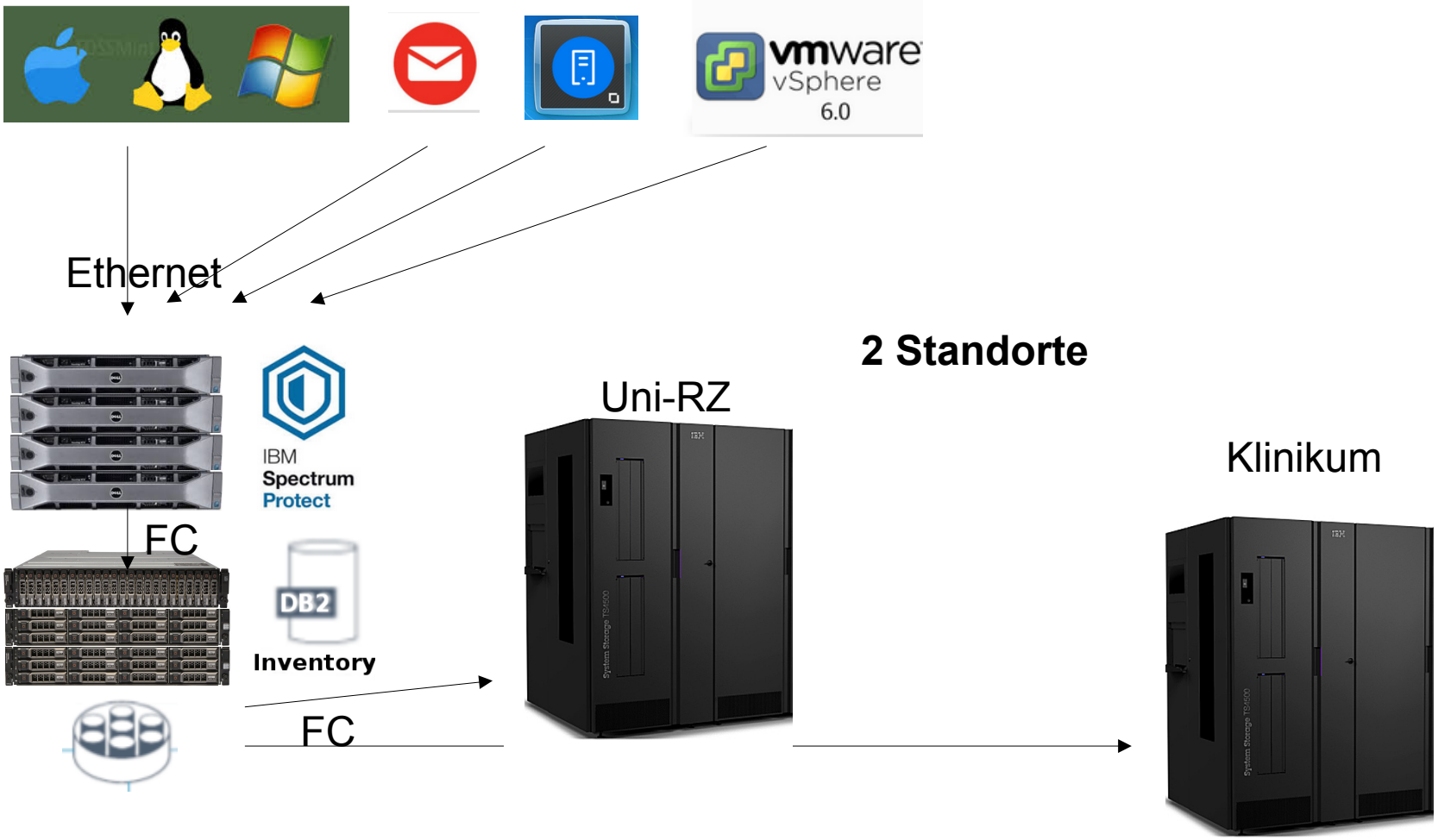

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Technische Daten für LTO Bandroboter (Linear-Tape-Open Standard)

2-Frame-Library je Standort mit je:

- 1050 lizenzierte Kasettenstellplätzen
- 1890 physikalische Kasettenstellplätzen (lizenzierbar)
- 200 LTO-Bandkassetten
- 7x LTO7-Laufwerke
  → derzeit je 1200TB Kapazität

	Größe ohne Kompression	mit Komp.	Geschw. ohne Komp.	mit Komp.	Schreiben	Lesen
LTO 3	400 GB	800 GB	80 MB/s	160 MB/s	LTO 2 / 3	LTO 1 / 2 / 3
LTO 5	1.500 GB	3.000 GB	140 MB/s	280 MB/s	LTO 4 / 5	LTO 3 / 4 / 5
LTO 7	6.000 GB	15.000 GB	300 MB/s	750 MB/s	LTO 6 / 7	LTO 5 / 6 / 7

Device	Hard Error Rate in bits	Equivalent in Bytes	Equivalent in PB's
SATA Consumer	10E14	1.25E+13	0.01
SATA/SAS Nearline Enterprise	10E15	1.25E+14	0.11
Enterprise SAS/FC	10E16	1.25E+15	1.11
LTO and some Enterprise SAS SSD's	10E17	1.25E+16	11.10
Enterprise Tape / LTO7	10E19	1.25E+18	1110.22

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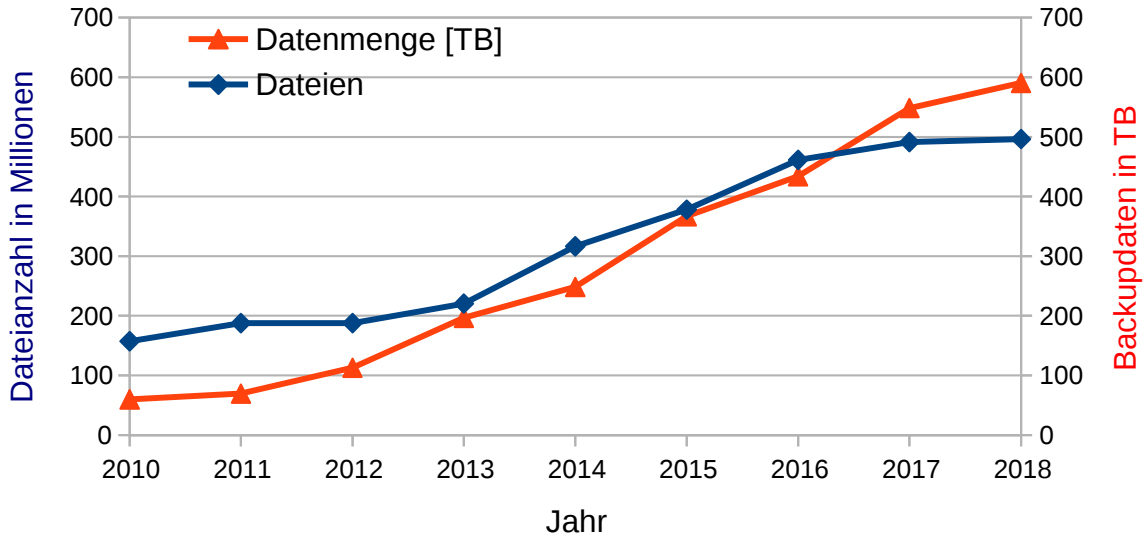
Backupdaten an der Uni Regensburg



Datenbestand: 590TB 496 Mio. Dateien (je Standort wegen Spiegelung)

- davon 29 TB Archiv Daten
- davon 45 TB ESX Backups (470 VMs)

→ Datenwachstum: 42% pro Jahr

tägliches Backup Volumen: 4,5 TB und 2,2 Mio Dateien

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Backup an der Uni Regensburg

ISP - Versionsverwaltung

Versions Data Exists — the number of versions to keep when the data still exists on the client machine

Versions Data Deleted — the number of the versions to keep when the data no longer exists on the client machine

Retain Extra Versions — how many days to keep inactive backup versions; the days are counted from the day that the version became inactive

Retain Only Versions — how many days to keep the last backup version of a object that has been deleted

Policy Domain Name	Policy Set Name	Mgmt Class Name	Copy Group Name	Versions Data Exists	Versions Data Deleted	Retain Extra Versions	Retain Only Versions
(File-)Server	ACTIVE	14-30-60	14-30-60	14	14	30	60
Groupwise	ACTIVE	60-60-60	60-60-60	60	60	60	60
ESX	ACTIVE	30-30-30	30-30-30	30	30	30	30
HPC+LST	ACTIVE	14-30-60	14-30-60	14	2	30	60

http://www.uni-regensburg.de/rechenzentrum/it-services/backup/index.html

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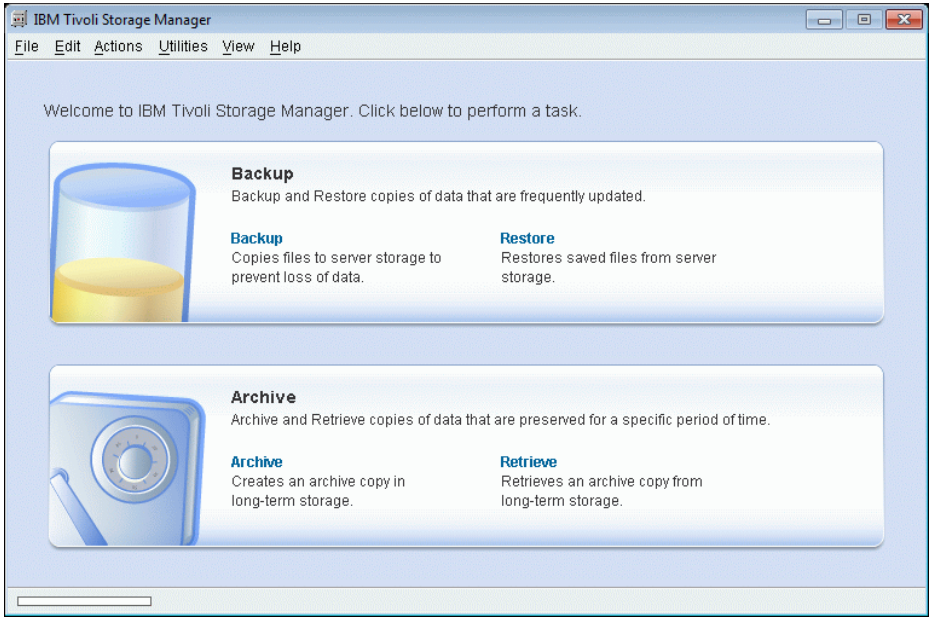
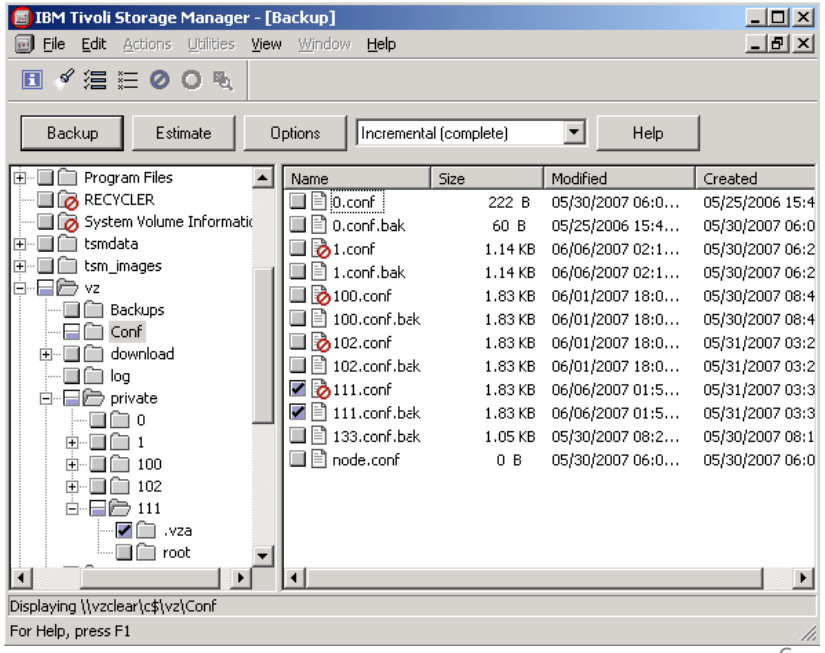
Backup an der Uni Regensburg

Backup und Restore auf Dateiebene → BA-Client

- Betriebssysteme: Windows, Linux (x86_64, Power, ...), Mac OS X, Netware, AIX, Solaris, Mainframe, …
- Java-GUI
- Kommandozeile