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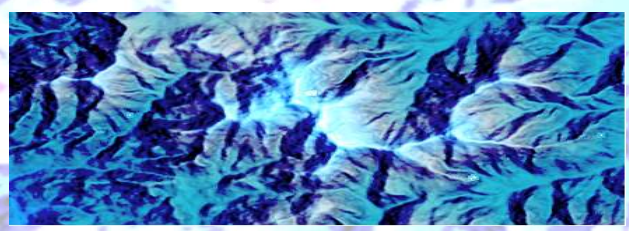
SPECTO e-business monitoring

An overview



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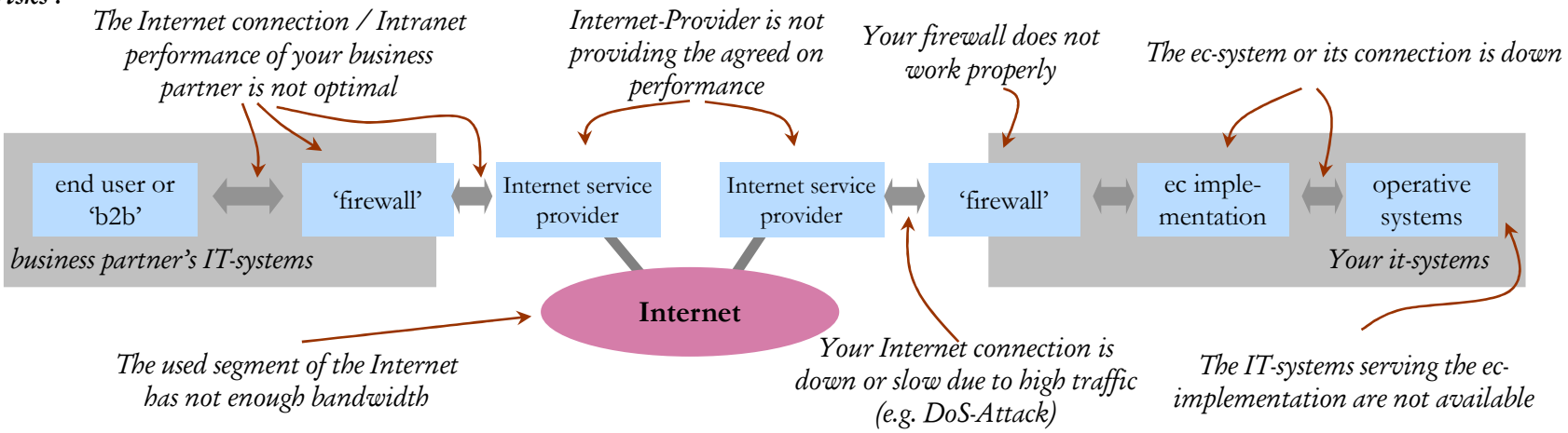
SPECTO motivation

- Together with your business partners you have created a valuable e-business solution.
- You are satisfied with the content and usability of this solution.
- It is running in the supervised environment of your data center.
- But do you really know, what degree of quality your business partners will see?

Known risks :



- Those risks can not be avoided, not even by good design.
- Only an early or precautionary detection of failures can reduce those problems.
- This detection is only possible through continuously monitoring from outside.
- **SPECTO exactly provides this.**

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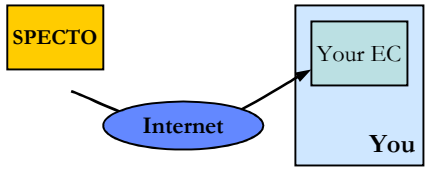
SPECTO scenarios

A)

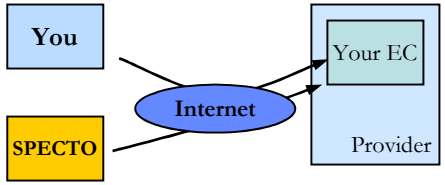
'in-house implemented ec solution'
You deploy an e-business solution at your location. The solution may be developed by yourself or based on an product (e.g.. 'intershop').



SPECTO: continuously scans your implementation from different parts of the internet

B)

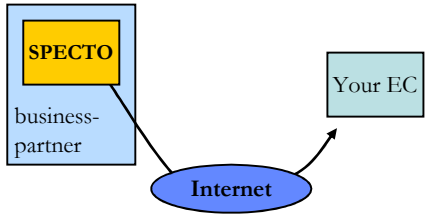
'outsourced ec site'
Like case A). Your site is hosted by an internet provider; or your are using the service of an ASP 'providers' (e.g. SAP Markets').



SPECTO: like A). You get information about the quality of service of your provider.

C)

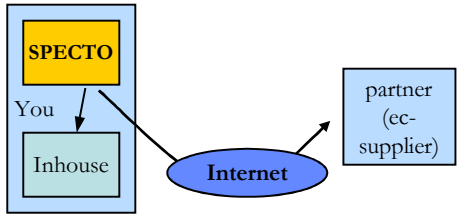
'ec - partner'
Similar to cases A) and B). You deal with several important large partners and want to assure your ec-service is excellent at **their** location



SPECTO: installed in the intranet of your business partner it will report from that point of view

D)

'in-house usage of ec-services'
Your company internally uses services supplied by the own edp department or by an external supplier



SPECTO: reports about your view of the services. Results can be used to monitor 'service level agreements'

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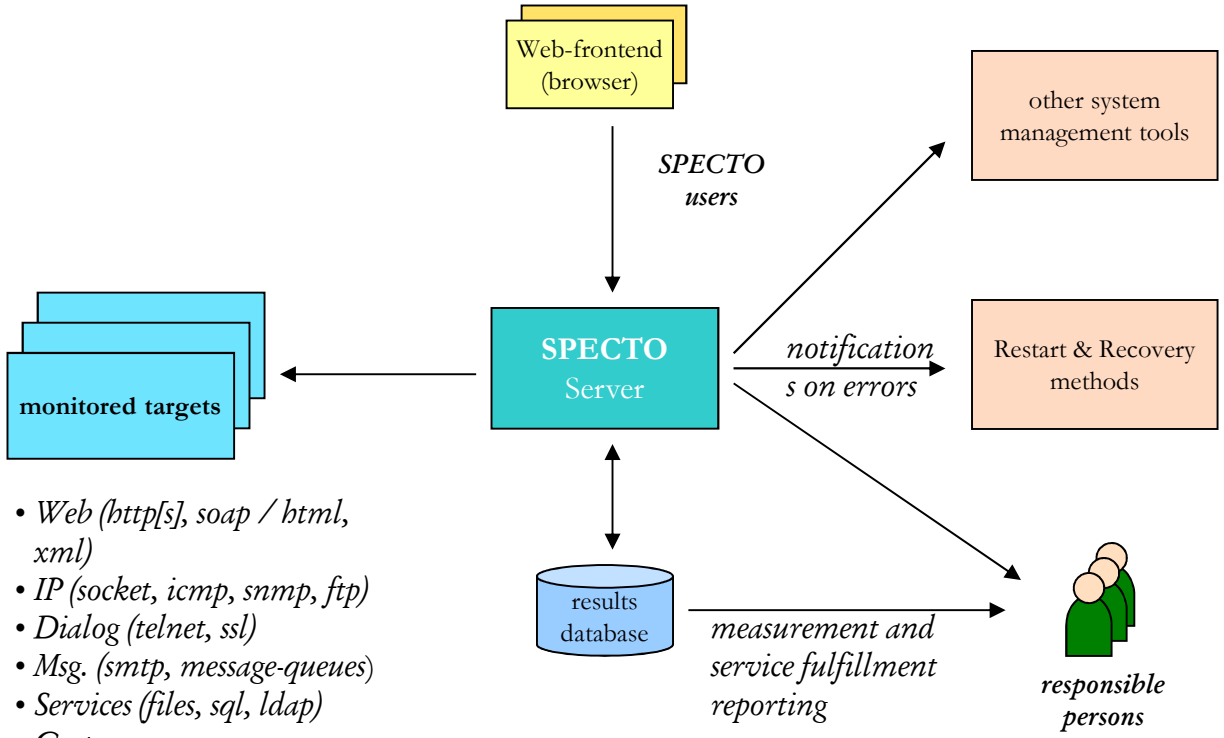
SPECTO structure

- The central SPECTO engine continuously monitors the defined targets. On errors or deviations it actively informs responsible persons and other tools.
- All relevant protocols are supported as targets. Business s processes are defined by dynamic sequences.
- Configuration supports multiple clients, multiple users and rights.
- All data storage is within standard relational databases.
- Results may be viewed online or distributed via email (PDF formats)
- SPECTO operation is via standard browsers.
- The engine features self-control/healing, 'am-alive' and hot-standby.



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The following pages will give an overview on the capabilities of the SPECTO system by a virtual tour through the most relevant components.

However, the complete implementation is much broader, consisting of over 100 screens and numerous internal documents and scripts.

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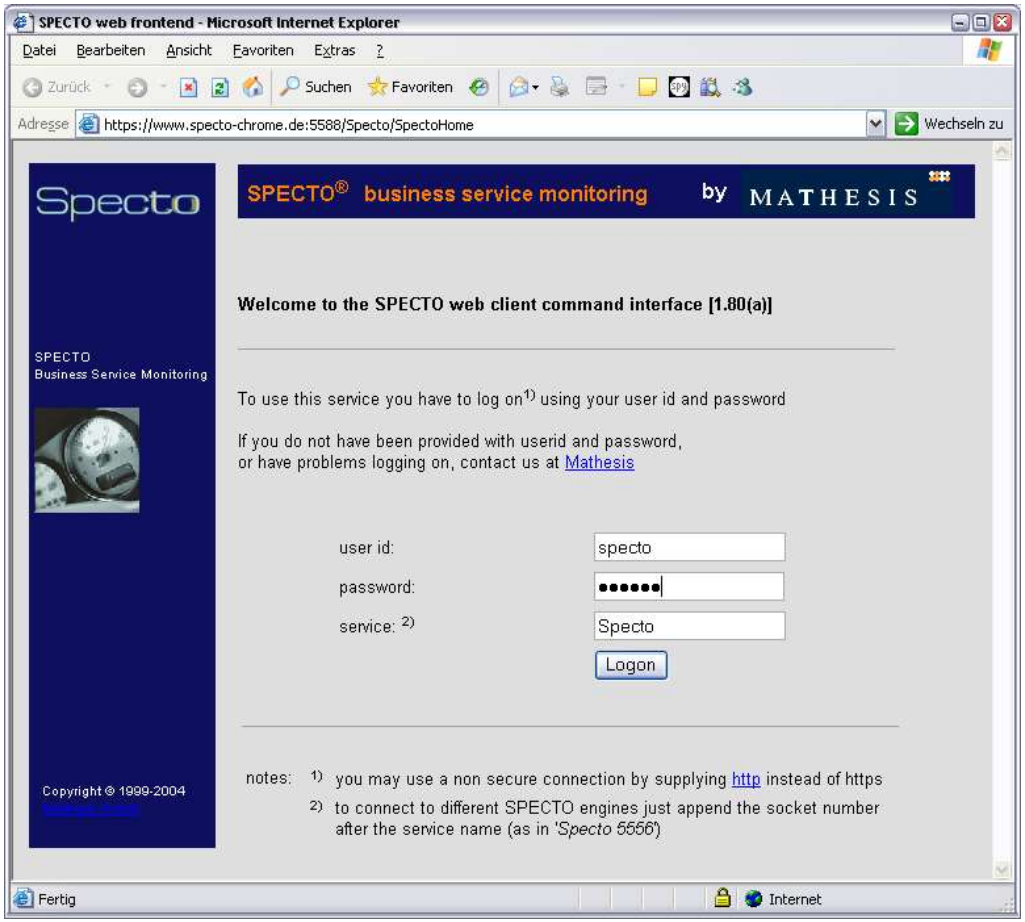
SPECTO logon

- Users use a standard web browser to talk to the SPECTO engine
- Multiple users & sessions are possible
- HTTP and secure HTTPS connections are supported
- Multiple SPECTO instances on a single host are supported

- As alternative to the web front-end also email, SAP R/3 and SNMP front ends are available.



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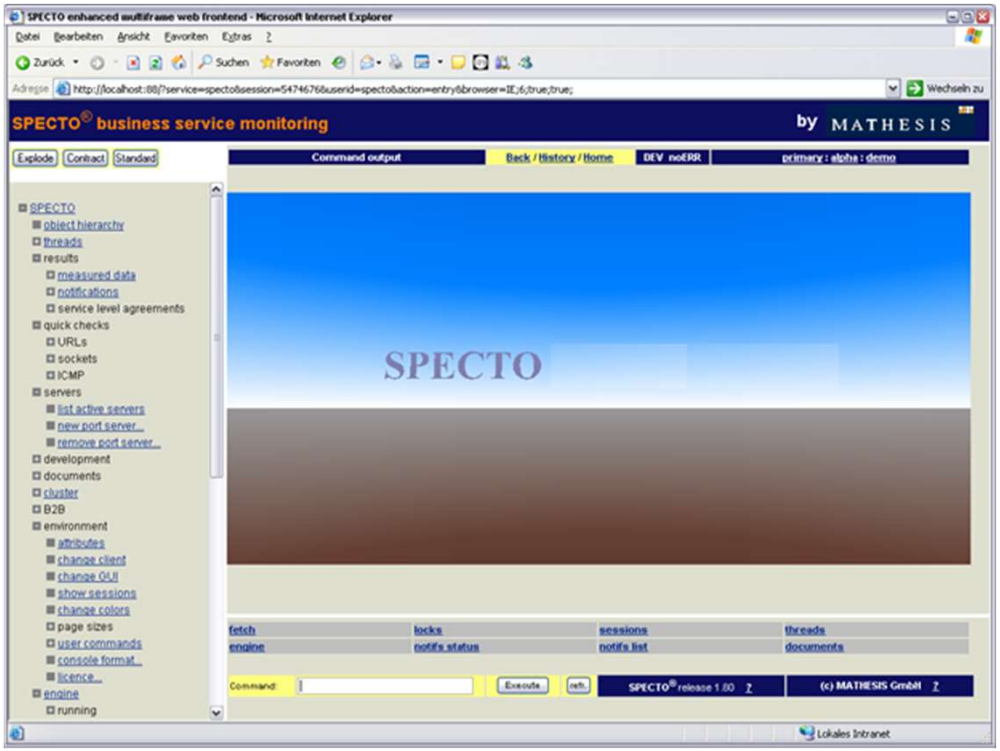
SPECTO engine enhancements

- The SPECTO GUI is divided into :
- the navigation frame (left side) providing a structured access to all features of the engine
- the main frame (top right) displaying the commands output
- the command frame (lower right) consisting of the user defined links and the command line



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SPECTO 'clients'

- The SPECTO engine supports multiple, independent clients.
- Users are assigned to one or several of the clients; any access to other clients is prohibited.
- Clients may be flagged 'read only'

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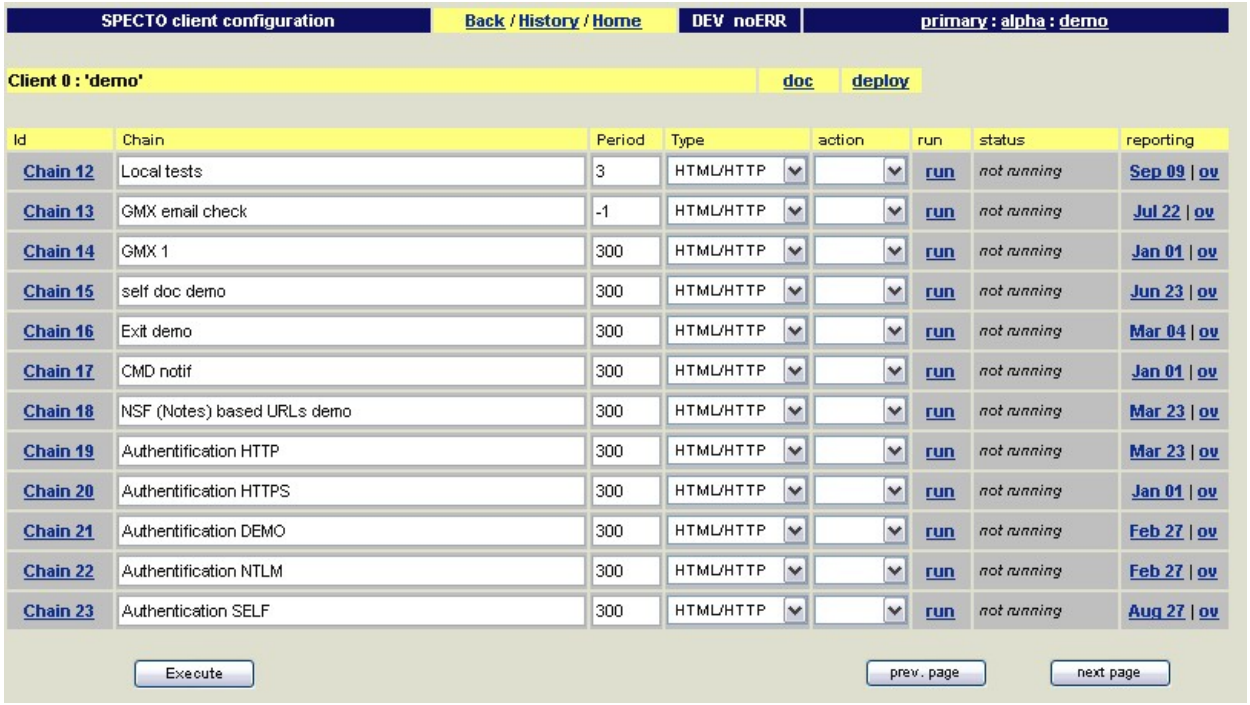
SPECTO monitored business processes 'chains'

- Within every client, there are the defined business processes ('chains').
- Every running chain (a 'thread') executes the chain's steps and writes the measured results to the database.
- There may be multiple threads per chain.
- The innovaction period of a chain is customizable and may be changed dynamically ba the thread itself (e.g. narrower monitoring during critical periods).
- chains may be moved and copied
- foir every chain there are quick links for the chains details, to start/stop a chain thread and to the reporting.



Id	Chain	Period	Type	action	run	status	reporting
Chain 12	Local tests	3	HTML/HTTP		run	not running	Sep 09 | ov
Chain 13	GMX email check	-1	HTML/HTTP		run	not running	Jul 22 | ov
Chain 14	GMX 1	300	HTML/HTTP		run	not running	Jan 01 | ov
Chain 15	self doc demo	300	HTML/HTTP		run	not running	Jun 23 | ov
Chain 16	Exit demo	300	HTML/HTTP		run	not running	Mar 04 | ov
Chain 17	CMD notif	300	HTML/HTTP		run	not running	Jan 01 | ov
Chain 18	NSF (Notes) based URLs demo	300	HTML/HTTP		run	not running	Mar 23 | ov
Chain 19	Authentification HTTP	300	HTML/HTTP		run	not running	Mar 23 | ov
Chain 20	Authentification HTTPS	300	HTML/HTTP		run	not running	Jan 01 | ov
Chain 21	Authentification DEMO	300	HTML/HTTP		run	not running	Feb 27 | ov
Chain 22	Authentification NTLM	300	HTML/HTTP		run	not running	Feb 27 | ov
Chain 23	Authentication SELF	300	HTML/HTTP		run	not running	Aug 27 | ov

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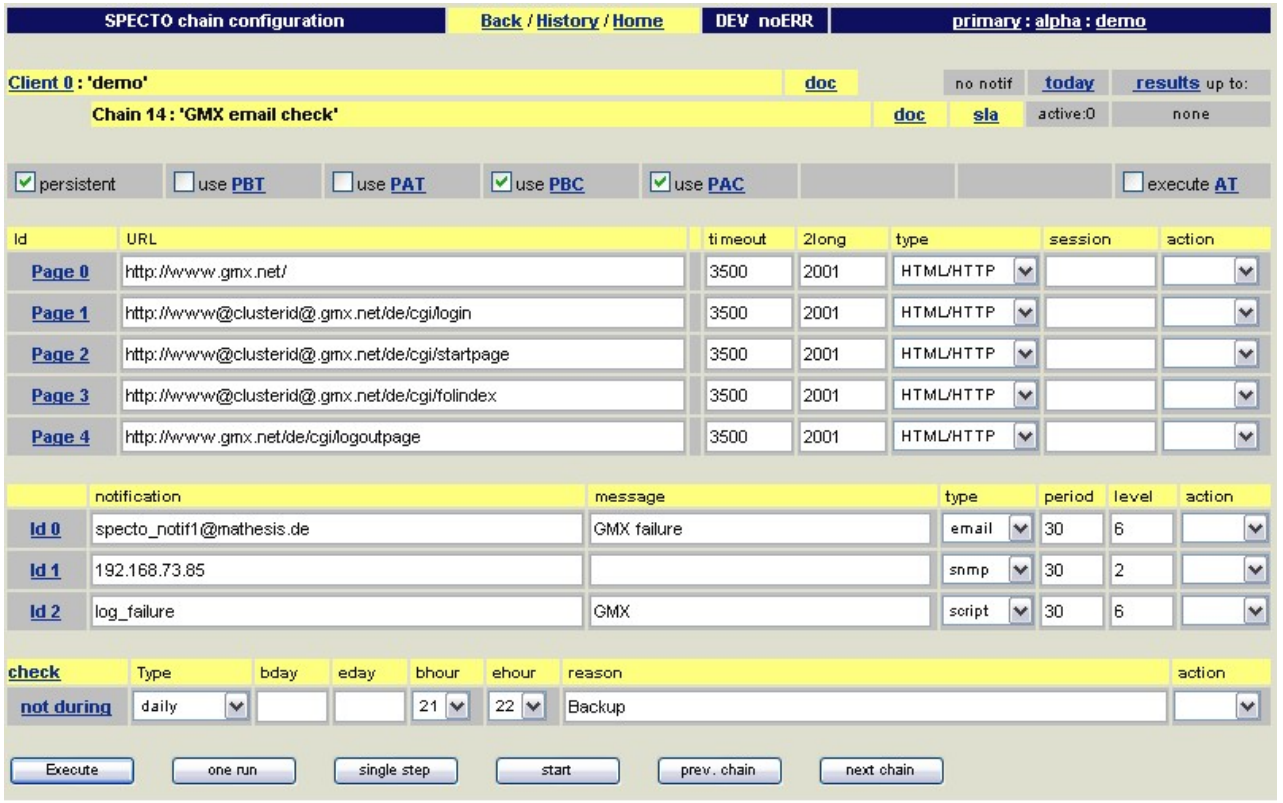
SPECTO chain details

- Any chains consists of steps 'URLs' which are executed in sequence.
- Chain processing may be enhanced by custom scripts ('PBT' – process before thread, 'PBC' – process before chain, 'PAC' – process after chain, 'PAT' – process after thread)
- The sequence may be altered dynamically (e.g. based on the progress of the current step)
- For any chain a set of addresses which are to be notified in case of errors can be defined
- For any chain 'off times' during which no measurements will take place can be specified.
- links to documentation, reporting and the chain details are available



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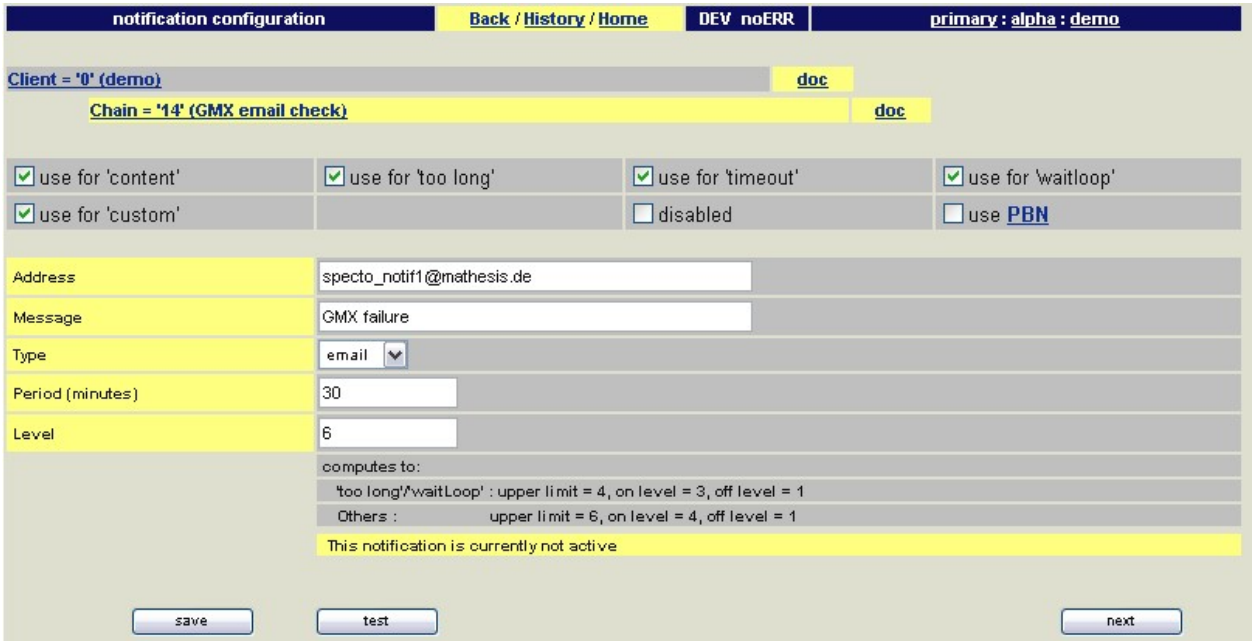
SPECTO 'notifications'

- A notification is triggered after the amount of errors during chain execution reaches a certain limit.
- During the error count stays above the limit notifications are repeated ('reminders')
- Optionally, after the error count falls below another limit a 'release' notification is send
- Notifications may be bound to a set of certain error classes (e.g. content or timing)
- A notification may be enhanced with a custom script ('PBN' – process before notification)
- Notifications may be tested individually.



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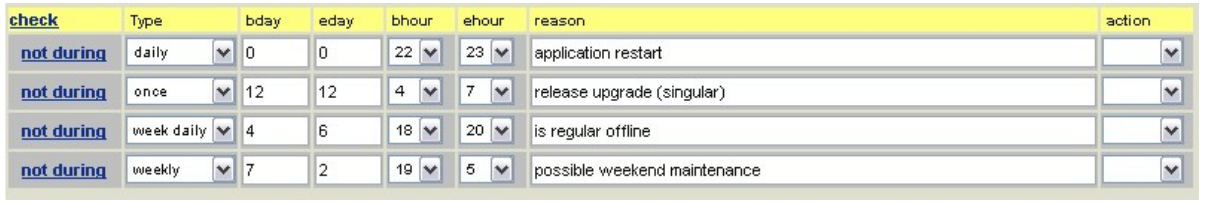
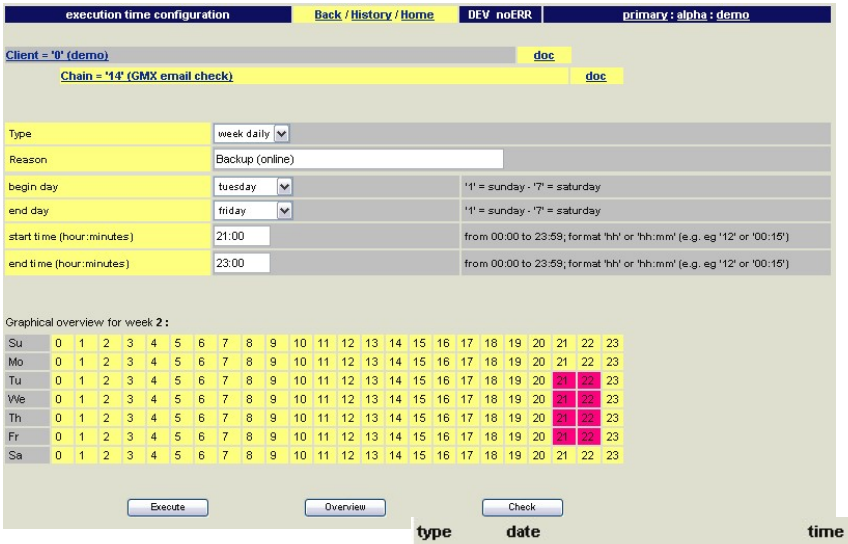
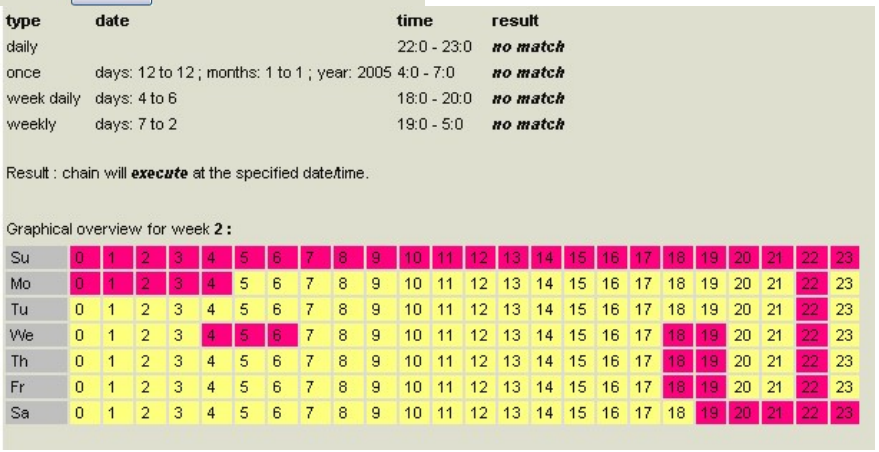
SPECTO 'off times'

- For any chain a set of 'off times' during which no measurements will take place may be defined.
- off times can be named
- An off time can be scheduled on day, wee, month, year or singular basis.
- The resulting off time is shown graphically
- A summary display of all off times of a chain is available, together with a test execution for a to be specified concrete date/time.







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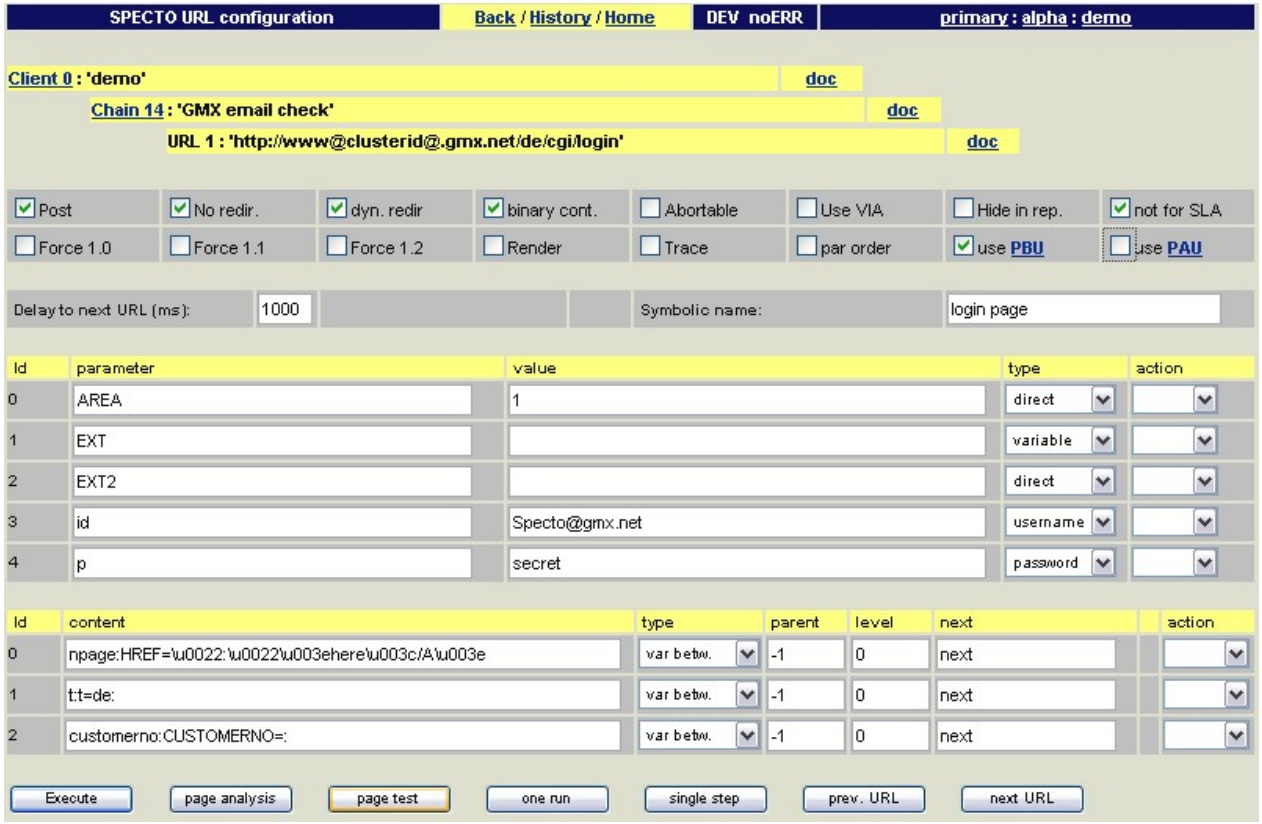
SPECTO chain steps – 'URLs'

- An URL ('uniform resource locator') is the basis of execution of the SPECTO engine. URLs are the steps executed during chain runs.
- The URL may be given a symbolic name, easing identification and out of sequence execution.
- URL processing may be enhanced by custom scripts ('PBU' – process before URL and 'PAU' – process after URL)
- URLs may have parameters with fixed or dynamic values.
- The returned output of an executed URL is checked against content qualifiers. The qualifiers may be fixed or dynamic (even scripts and exits)
- URLs may be hidden for reporting or SLA processing
- For any URL a reference may be specified (allowing comparisons between 'own' and 'common' sites9



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SPECTO URL types

- Though HTTP/HTML being the most common pair of monitorable protocol and content type the SPECTO engine supports a much more rich set of protocols and formats.
- All capabilities of the sequencing engine and the content processing is available for all those protocols and formats.
- The protocols and formats may custom extensible via exits

protocols :

- http
- https
- soap
- smtp (email)
- ftp
- telnet
- ssh
- sockets
- snmp
- ldap

formats :

- html
- xml
- applets
- pdf
- flash
- plain
- ebcdic
- unicode

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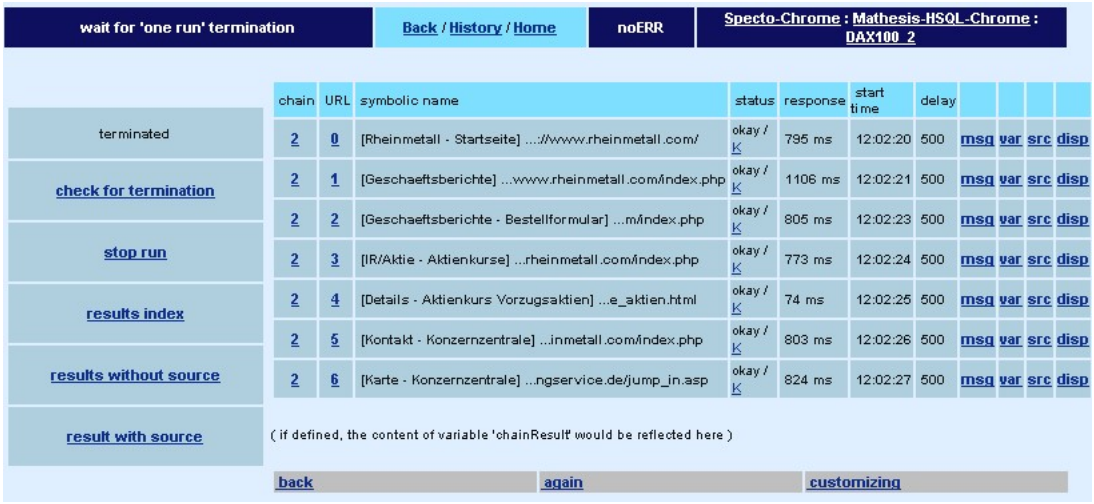
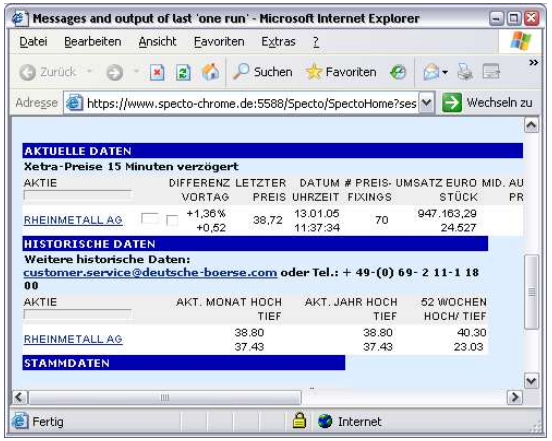
SPECTO tesing of chains

- To test a newly defined chain the 'one run' capability is available.
- 'one run' executes a chain once by displaying any step in detail.
- During and after the 'one run' all messages, the defined variables, the resulting content and HTML rendering may be displayed.



type	message	value
message		
	REQUEST	
message	Authenticator	Implementation by JDK : true
message	Authenticator	no authentication defined
message	Authenticator	no proxy authentication defined
message	Session	No Session ID inserted - no id defined
message	Property lock mode 1	
message	HTTP	'http://www.rheinmetall.com/index.php?lang=2&fid=1165'
message	Method	'GET'
message	Host	'www.rheinmetall.com'
message	HTTP Referer: 'http://www.rheinmetall.com/index.php?lang=2&fid=1081'	
message	Cookie	no cookies inserted
header	User-Agent	[Mozilla/4.0 (compatible; MSIE 5.0; Windows NT; DigExt)]
header	Host	[www.rheinmetall.com]
header	Accept-Language	[en, de]
header	Referer	[http://www.rheinmetall.com/index.php?lang=2&fid=1081]
header	Content-Type	[text/html]
header	Accept	[image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, application/vnd.ms-excel,
	RESPONSE	
header	Date	'Thu, 13 Jan 2005 11:02:32 GMT'
header	Server	'Apache/1.3.33 (Unix) PHP/4.3.8 mod_ssl/2.8.22 OpenSSL/0.9.7e'
header	X-Powered-By	'PHP/4.3.8'
header	Keep-Alive	'timeout=15, max=93'
header	Connection	'Keep-Alive'
header	Transfer-Encoding	'chunked'
header	Content-Type	'text/html'
message	Method	GET
message	Code	200; Text = OK
message	Redir	true/false
message	Referer	http://www.rheinmetall.com/index.php?lang=2&fid=1165
message	Host	http://www.rheinmetall.com
message	Location	null
message	Encoding =	
	CONTENT	
message	binary content	
message	Session	session id = '' : false; value = 'null'
message	Contentcheck: Bitte schicken Sie mir kostenlos die aktuellen Publikationen=true	
	RESULT & NEXT	
message	PAU script started	
message	Result of 4/2/2[1]: okay with par [URL](K) d=805	
message	Next position	chain 2 URL 3



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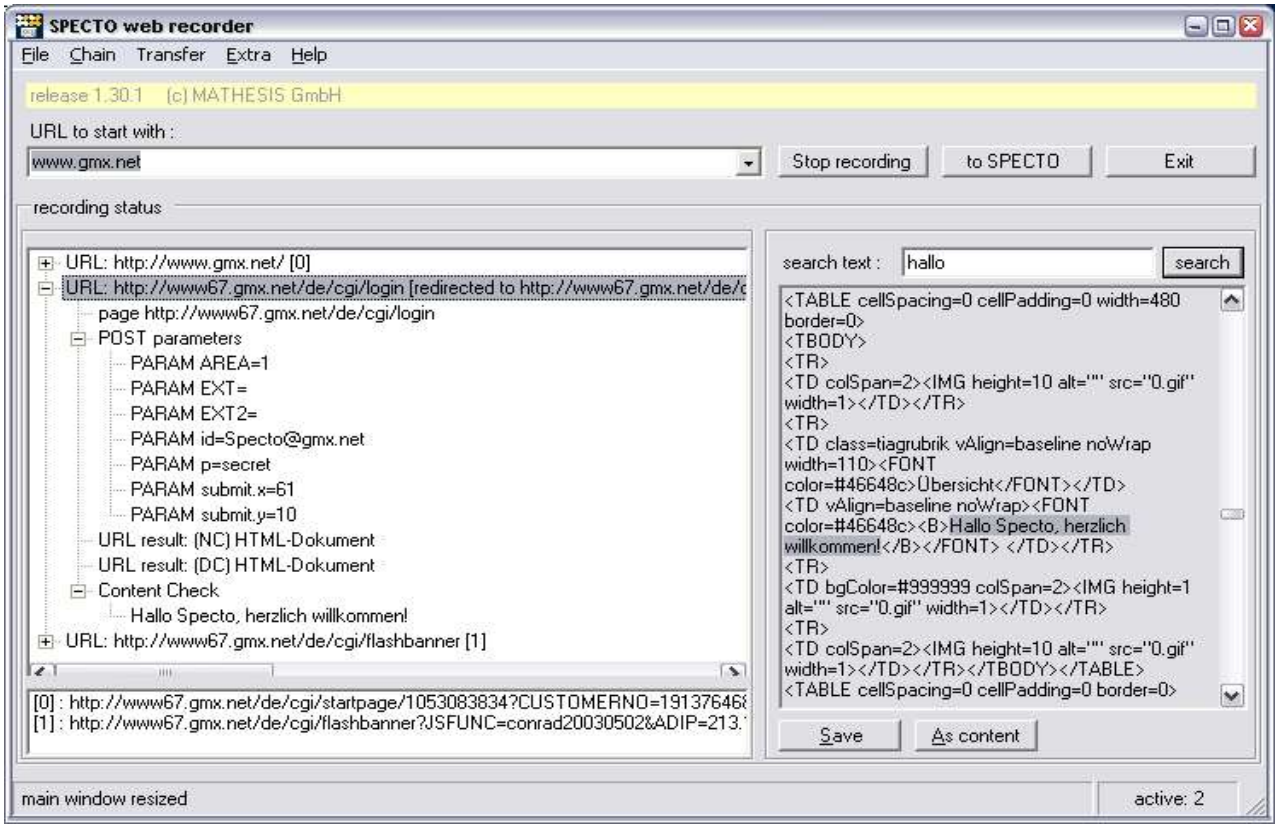
SPECTO recording of chains

- chains consisting of HTML/HTTP steps need not be created manually but can be recorded by the SPECTO 'web recorder' (only available for Windows / Internet Explorer)
- The web recorder plugs into the web browser and records any user action.
- web recorder handles multi-windows and multi-frames situations
- It also allows for the marking of 'content check' candidates
- web recordings can be online transferred into a SPECTO chain
- web recordings can also be saved as a local file in an XML format, allowing an Internet user to create the recording and hand it over to an expert for further processing



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The measurement results of the SPECTO engine are available for different reporting aspects

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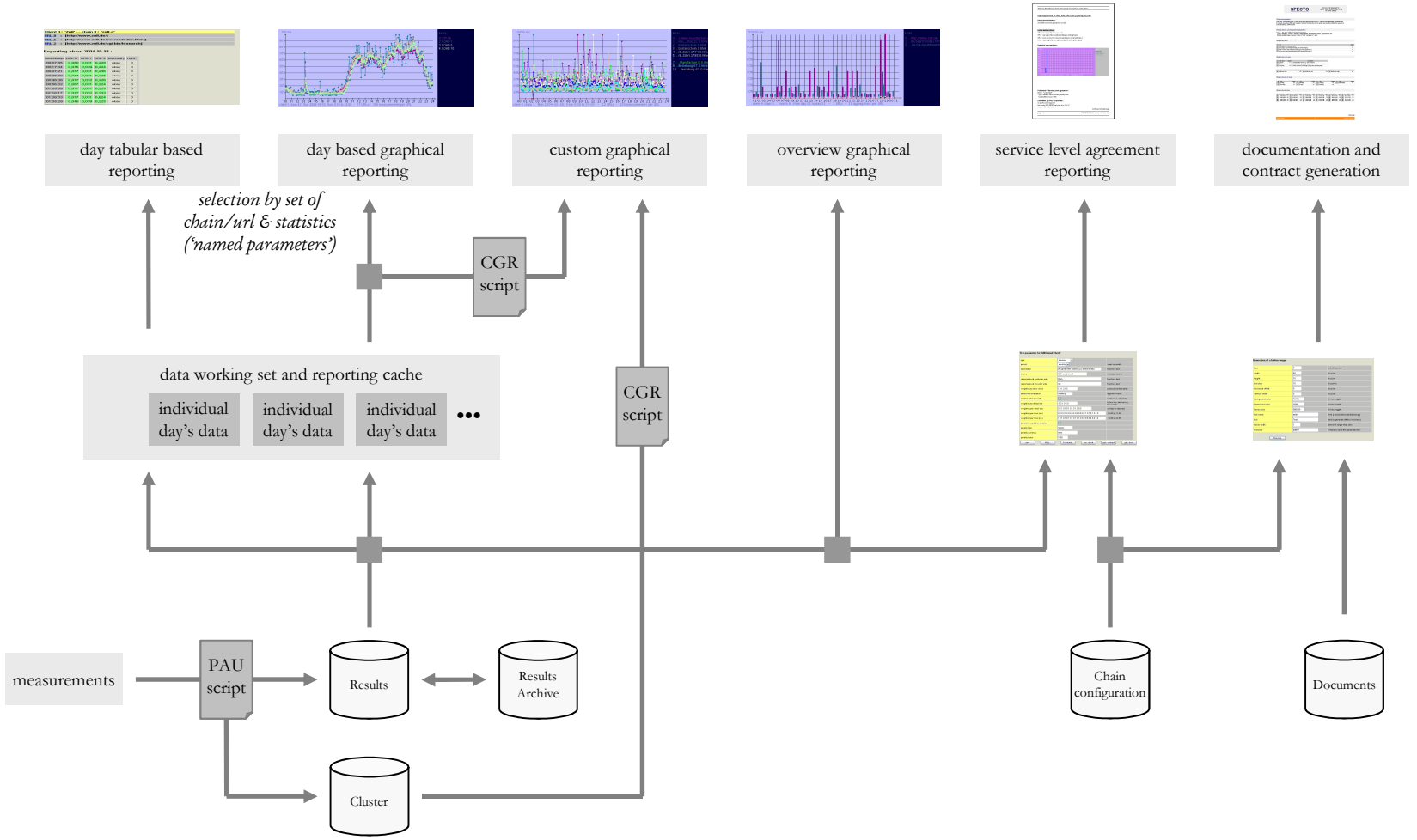
SPECTO reporting : architecture



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SPECTO reporting : values

- The individual measurement values are available in tabular lists.
- Beside the URL measurement, the result of the optional reference may be shown
- Any combination of chains/URLs are allowed
- Several computations (avg, min, max, dev) are available.
- The number of active notifications (at the time of the measurement) is shown
- Navigation on chain, URL and date basis is available
- Links to the reporting overview and the graphical display of the data are available
- The result may also be downloaded in .csv format

SPECTO results - time period overview (node 0) | Back / History / Home | DEV noERR | primary : alpha : demo

Client 0 : 'demo' --- chain 0 : 'C4 demo'
URL 0 : [http://localhost/get.html]
URL 1 : [http://localhost/get.html]
URL 3 : 'fourth chain' [http://localhost/post.html]
URL 4 : [nothing]

Reporting about 2004-07-06 : bottom

timestamp	url 0/0	url 0/1	url 0/3	url 0/4	summary	notif.	succ.
08:40:45	n.a.	0,017 R 0,711	0,015 R 0,490	n.a.	okay (note: n.a.)	0	2
08:40:57	n.a.	0,020 R 0,511	0,013 R 0,671	n.a.	okay (note: n.a.)	0	2
08:41:09	n.a.	0,001 R 0,511	0,020 R 0,651	n.a.	okay (note: n.a.)	0	2
08:41:20	n.a.	0,030	0,011 R 0,661	n.a.	okay (note: n.a.)	0	2
08:41:32	n.a.	0,001 R 0,591	0,091 R 0,571	n.a.	okay (note: n.a.)	0	2

Number of reference entries : 9

top | top of data
prev. day | next day | w/o file | with file | graphic of this | refresh day | overview 14 | overview 28

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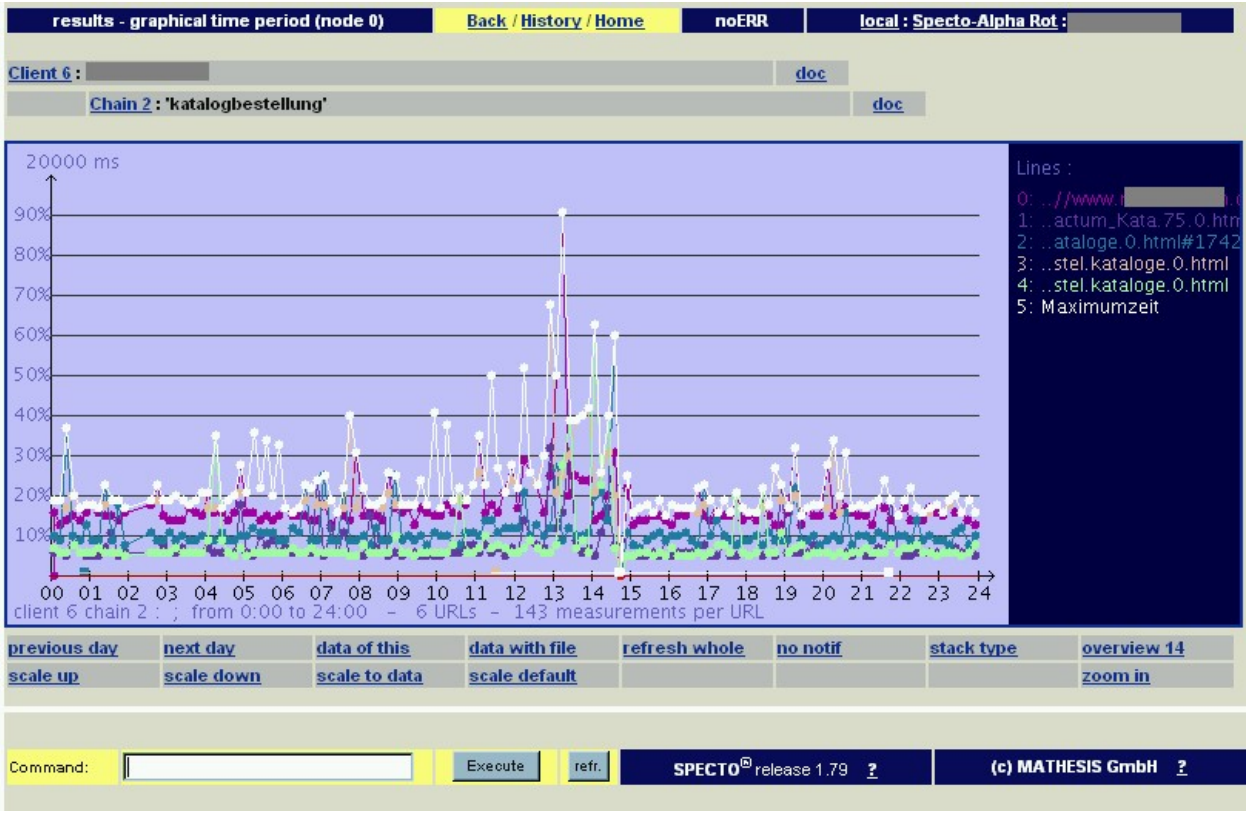
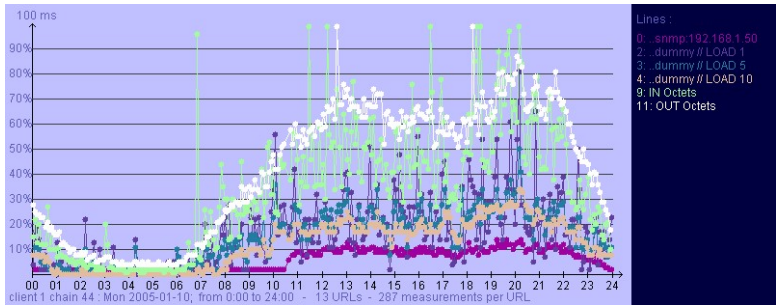
SPECTO reporting : day graphics

- The measurements of a day may be shown graphically in several formats
- Any combination of chain/URL is allowed
- Zooming and panning in the graphic is available
- The axis may be scaled manually or automatically
- mouse pointing to a measurement point shows the exact value
- Periods of active notifications may be shown or hidden
- The graphic may be formatted as GIF or SVG ('scaleable vector graphics')
- Navigation on chain and date basis and to the reporting overview is available.
- Colors are selectable





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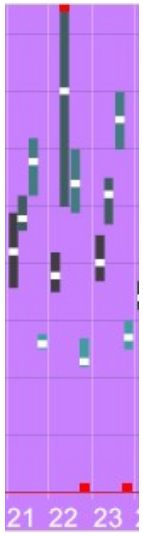
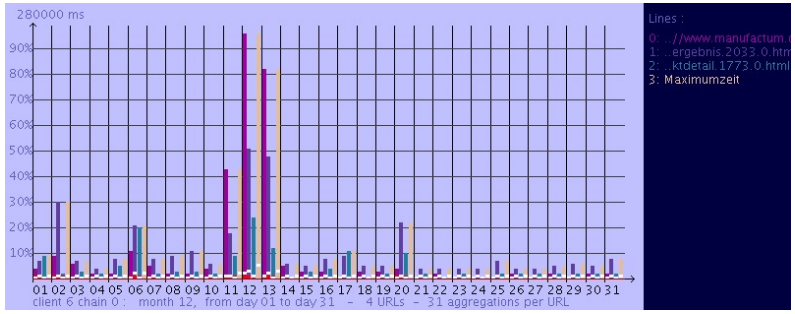
SPECTO reporting : summary graphics

- Summary graphics may be generated on day, week or month basis
- Shown is the measurement area (min/max), the average and errors





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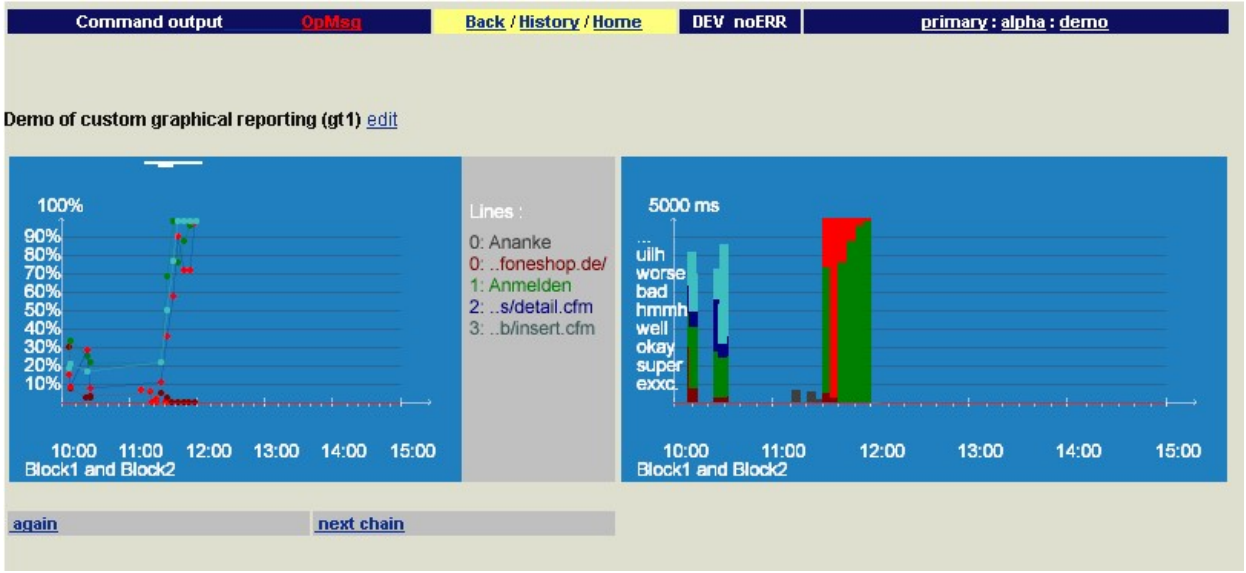
SPECTO reporting: script based custom reporting

- Reports may also be created by using the SPECTO engine's scripting capability together with the reporting library
- This allows for unlimited type of reports; especially combinations of multiple tables, graphics and links in one document.
- Such documents may also be output as PDF documents which may also be distributed automatically via email



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SPECTO reporting: pdf generation and distribution

SPECTO WAP Status: Aktuelle Störungen (1) (kpi=855) - Nachricht (HTML)

Datei Bearbeiten Ansicht Einfügen Format Extras Aktionen ?

Antworten | Allen antworten | Weiterleiten

Von: specto@specto-titan.de Gesendet: Di 22.08.2006 08:38
An:
Cc:
Betreff: SPECTO WAP Status: Aktuelle Störungen (1) (kpi=855)
Anlagen: attn1Wap.pdf (45 KB)

SPECTO WAP Tagesbericht für 22.08.2006 08:40:00

Laufende WAP Monitore:

Prozess	Letzter Lauf
WAP Warenkorb mit Suche [ID14]	22.08.2006 08:32:17
WAP	22.08.2006 08:21:51
WAP Erweiterte Suche [ID16]	22.08.2006 08:25:35
WAP Kinderwelt [ID17]	22.08.2006 08:32:10
WAP Herrenwelt [ID18]	22.08.2006 08:24:01
WAP Damenwelt [ID19]	22.08.2006 08:24:49
WAP Schni¿¼ppchenwelt [ID20]	22.08.2006 08:31:03
WAP SpecialWelt [ID21]	22.08.2006 08:37:17
WAP Freizeitwelt [ID22]	22.08.2006 08:23:07
WAP Technikwelt [ID23]	22.08.2006 08:32:36
WAP Wohnwelt [ID28]	22.08.2006 08:23:32

Aktuelle Störungen :

Prozess	Fehlerbeschreibung	Nachricht	seit
	'Content' in URL 'Specials 3.2.2'		11.08.2006 09:32:28
	'Content' in URL 'Specials 3.2.2'		11.08.2006 09:32:29
	'Content' in URL 'Specials 3.2.2'		11.08.2006 09:32:30

Störungen am Vortag :

Zeitpunkt	Prozess	Status	Adressat
04:36:52	WA Sch		
04:36:52	WA Sch		
04:36:53	WA Sch		

Statistiken des Vortags :

Prozess	avg URLs	avg	min	max
WAP Warenkorb mit Suche	0=90, 1=82, 2=1138, 3=1114, 4=636, 5=114, 6=76, 7=62, 8=73, 9=2999, 10=538,	629	52	19173
WAP	0=83, 1=447, 2=1235, 3=-347, 4=-623, 5=58, 6=434,	183	49	21127
WAP Erweiterte Suche	0=84, 1=91, 2=78, 3=11185,	2859	52	14707
WAP Kinderwelt	0=101, 1=0, 2=921, 3=770, 4=838, 5=570, 6=1950, 7=433,	697	0	21438
WAP Herrenwelt	0=91, 1=671, 2=733, 3=414, 4=385, 5=369, 6=1980, 7=781,	678	55	3404
WAP Damenwelt	0=244, 1=578, 2=722, 3=652, 4=1482, 5=832,	751	49	18716
WAP Schni¿¼ppchenwelt	0=130, 1=664, 2=3435, 3=416,	1161	53	8196
WAP SpecialWelt	0=86, 1=714, 2=392, 3=0, 4=0, 5=0, 6=0, 7=766,	244	0	3509
WAP Freizeitwelt	0=134, 1=1527, 2=798, 3=708, 4=697, 5=1809, 6=662,	905	52	23689
WAP Technikwelt	0=104, 1=762, 2=725, 3=676, 4=420, 5=1436, 6=472,	656	58	5520
WAP Wohnwelt	0=259, 1=658, 2=733, 3=549, 4=744, 5=1063, 6=482,	641	66	16924

KPI (key performance indicator = overall AVG) : **855 ms.**

In Anlage eine graphische Darstellung des Verlaufs des vergangenen Tags (PDF Format)

Erzeugt durch SPECTO Instanz : Titan

process monitoring

Tagesverlauf von am 21.08.2006

Prozess wSession' [0] KPI = 245 ms
Keine Störungsmeldungen

Prozess rtseiten' [1] KPI = 455 ms
Content Fehler seit 09:35:45 : created (reminder is 360 min)
Content Fehler seit 09:35:45 : created (reminder is 360 min)
Content Fehler seit 09:35:45 : created (reminder is 360 min)
Content Fehler seit 10:36:00 : removed (Delete notif 3/1 : started Aug
Content Fehler seit 10:36:01 : removed (Delete notif 3/1 :)

Prozess 'Navigation_oben' [2] KPI = 120 ms
Keine Störungsmeldungen

Prozess 'Suche' [4] KPI = 340 ms
Content Fehler seit 09:39:15 : created (reminder is 360 min)
Content Fehler seit 09:39:15 : created (reminder is 360 min)
Content Fehler seit 09:39:16 : created (reminder is 360 min)
Content Fehler seit 10:39:37 : removed (Delete notif 3/4 : started Aug
Content Fehler seit 10:39:38 : removed (Delete notif 3/4 :)

Prozess 'Warenkorb' [5] KPI = 1305 ms
Keine Störungsmeldungen

Prozess ' KPI = 309 ms
Content Fehler seit 20:38:39 : created (reminder is 360 min)
Content Fehler seit 20:38:40 : created (reminder is 360 min)
Content Fehler seit 20:38:40 : created (reminder is 360 min)
Content Fehler seit 21:37:49 : removed (Delete notif 3/6 : started Aug
Content Fehler seit 21:37:50 : removed (Delete notif 3/6 :)

Die Graphiken sind i. W. auf 5 Sekunden skaliert. Balken am oberen Bildrand kennzeichnen Zeitbereiche mit Fehlern.

created by SPECTO

08/22/2006 - 1 - Mandant "Online-Shop"

1 von 5

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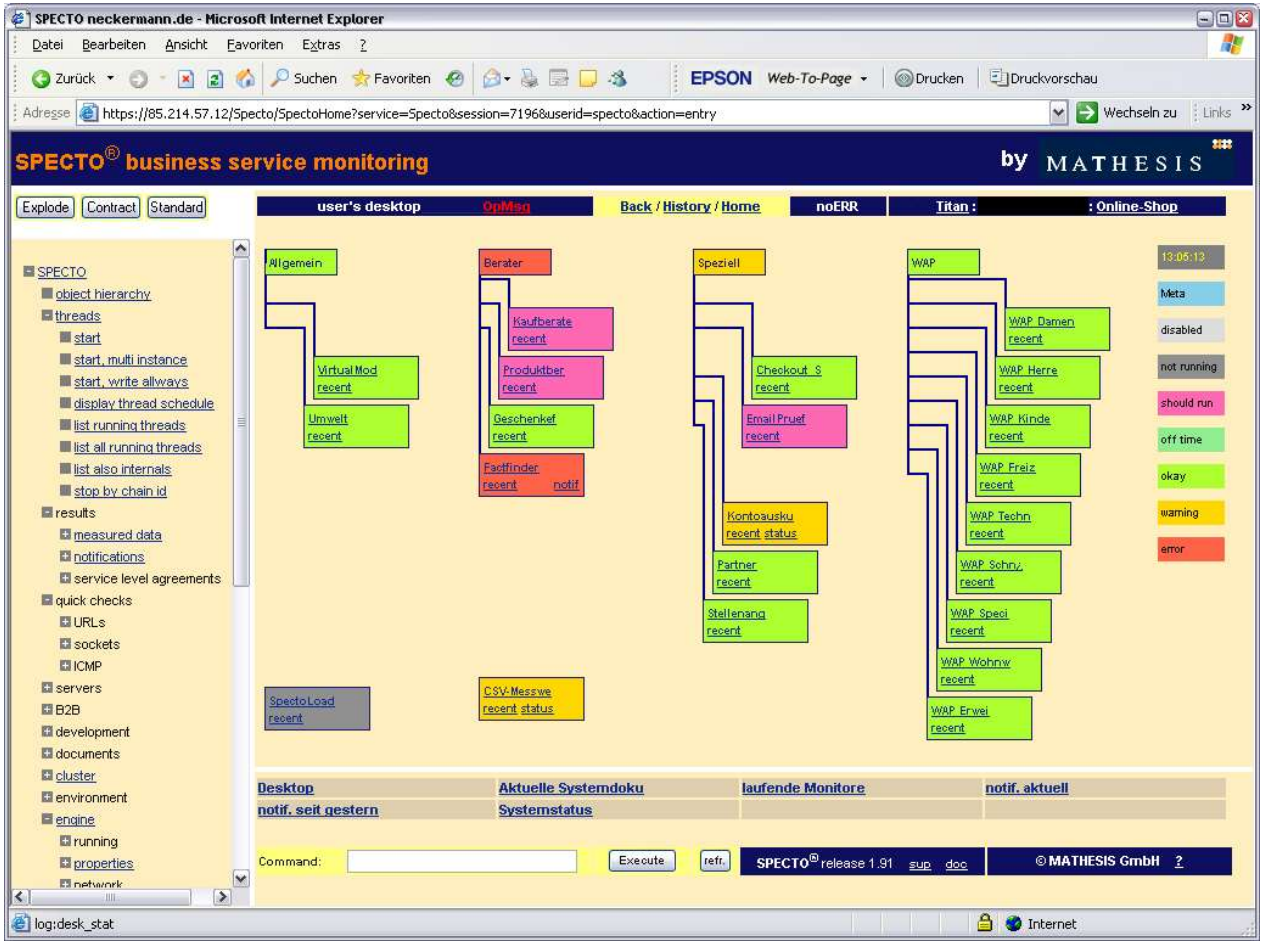
SPECTO reporting: online desktop

- SPECTO desktop provides a self refreshing status overview for all defined chains of a client
- Items may be arranged, named and grouped individually
- Each item features links to its configuration, reporting and error screens.
- Inter-client configurations are supported



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The service level agreement (SLA) module extends SPECTO measurements to the 'business' level :

Basic idea :

- Maintain goals/limits, formally (→ contract) agreed to by both parties *(whenever there are changes)*
- Summarize measurements on an hour/day base over a period (week/month), compute the deviation and generate fulfillment reports *(regularly, automated)*

Functionality :

- maintenance of SLA definitions
- SLA contract generation
- SLA fulfillments report generation
- optional SLA penalty computation

Coming :

- Script based custom extensions (e.g. penalty formulas)

Primary design principle was to make SLA definition, maintenance and usage as easy to use as possible.

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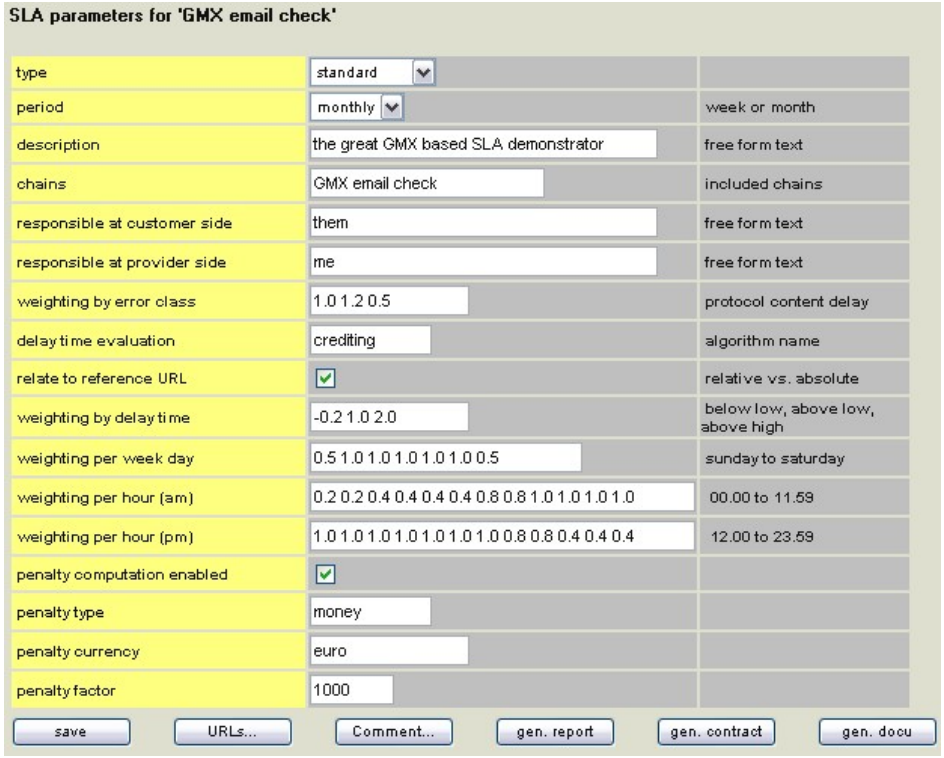
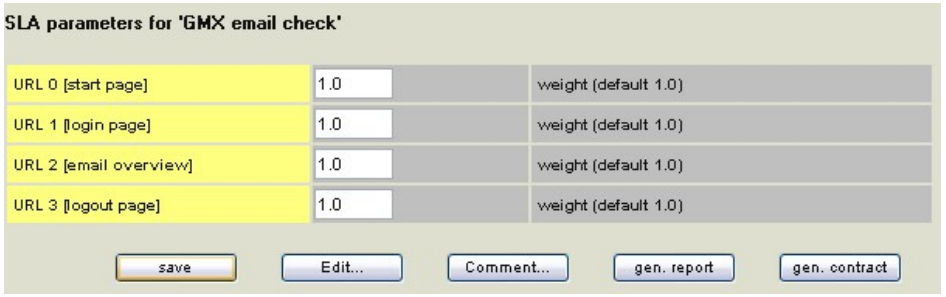
SPECTO service level agreements (SLA) : definition

- SLAs ('service level agreements') are used to define the delivery between a service provider and its customers
- Such an SLAs grading relies real measurements
- SPECTO supports SLA definition and fulfillment computation based on the defined chains and goals.
- The goals and additional SLA specific parameters are maintained in the SLA component
- Any parameter may be weighted
- Penalties may be defined
- Based on the SLA definition, SLA contracts are generated (as PDF documents) assuring the compliance with the specified parameters





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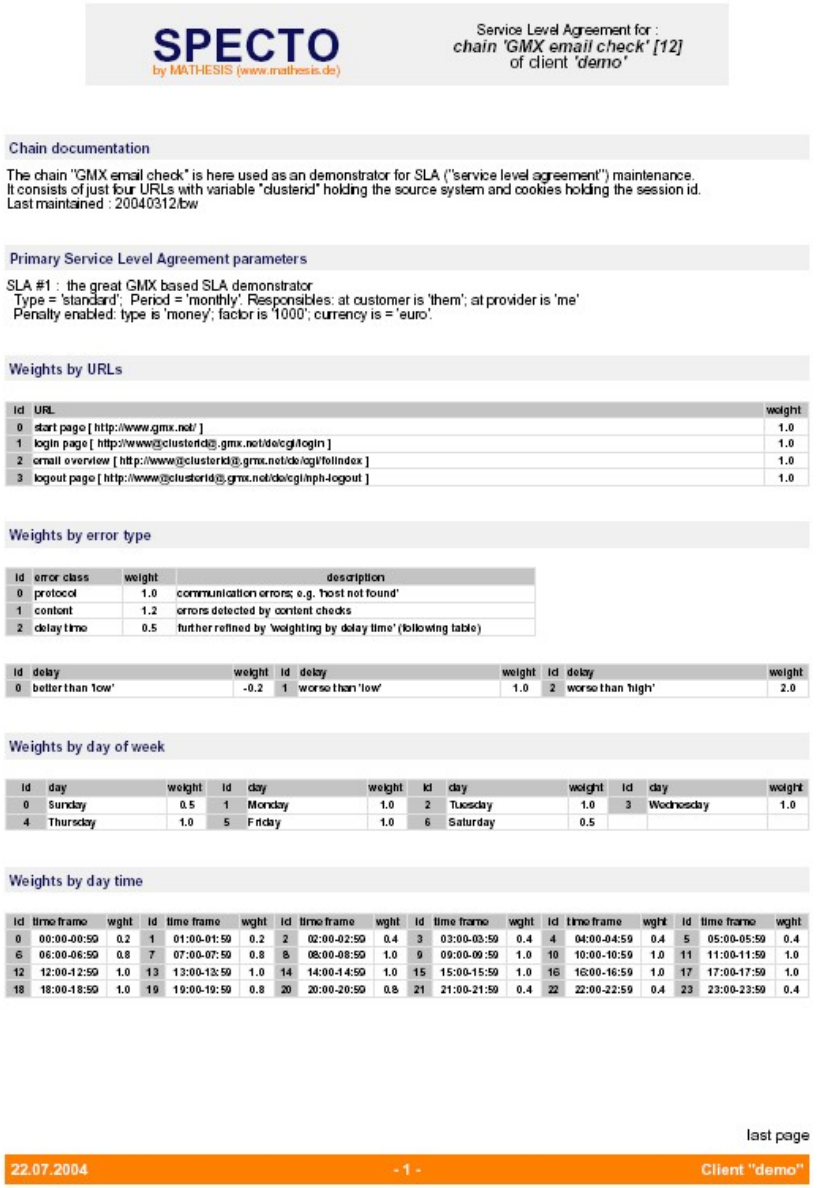
SPECTO service level agreements (SLA) : contract generation

- The SLA contract contains all defined parameters.
- Because it is based on the actual SPECTO definition it is accurate.
- The re-generation of a contract is done within seconds – allowing frequent updates to the parameters without need to complicated rewriting of contracts
- Contracts may be automatically distributed by email



SPECTO
by MATHESIS (www.mathesis.de)

Service Level Agreement for :
chain 'GMX email check' [12]
of client *'demo'*

Chain documentation

The chain "GMX email check" is here used as an demonstrator for SLA ("service level agreement") maintenance.
It consists of just four URLs with variable "clusterid" holding the source system and cookies holding the session id.
Last maintained : 20040312/bw

Primary Service Level Agreement parameters

SLA #1 : the great GMX based SLA demonstrator
Type = 'standard'; Period = 'monthly'. Responsibles: at customer is 'them'; at provider is 'me'
Penalty enabled: type is 'money'; factor is '1000'; currency is = 'euro'.

Weights by URLs

Id	URL	weight
0	start page [http://www.gmx.net/]	1.0
1	login page [http://www@clusterid@.gmx.net/de/cgi/login]	1.0
2	email overview [http://www@clusterid@.gmx.net/de/cgi/follindex]	1.0
3	logout page [http://www@clusterid@.gmx.net/de/cgi/mph-logout]	1.0

Weights by error type

Id	error class	weight	description
0	protocol	1.0	communication errors; e.g. 'host not found'
1	content	1.2	errors detected by content checks
2	delay time	0.5	further refined by 'weighting by delay time' (following table)

Id	delay	weight	Id	delay	weight	Id	delay	weight
0	better than 'low'	-0.2	1	worse than 'low'	1.0	2	worse than 'high'	2.0

Weights by day of week

Id	day	weight	Id	day	weight	Id	day	weight	Id	day	weight
0	Sunday	0.5	1	Monday	1.0	2	Tuesday	1.0	3	Wednesday	1.0
4	Thursday	1.0	5	Friday	1.0	6	Saturday	0.5			

Weights by day time

Id	time frame	wght	Id	time frame	wght	Id	time frame	wght	Id	time frame	wght	Id	time frame	wght	Id	time frame	wght
0	00:00-00:59	0.2	1	01:00-01:59	0.2	2	02:00-02:59	0.4	3	03:00-03:59	0.4	4	04:00-04:59	0.4	5	05:00-05:59	0.4
6	06:00-06:59	0.8	7	07:00-07:59	0.8	8	08:00-08:59	1.0	9	09:00-09:59	1.0	10	10:00-10:59	1.0	11	11:00-11:59	1.0
12	12:00-12:59	1.0	13	13:00-13:59	1.0	14	14:00-14:59	1.0	15	15:00-15:59	1.0	16	16:00-16:59	1.0	17	17:00-17:59	1.0
18	18:00-18:59	1.0	19	19:00-19:59	0.8	20	20:00-20:59	0.8	21	21:00-21:59	0.4	22	22:00-22:59	0.4	23	23:00-23:59	0.4

last page

22.07.2004 - 1 - Client "demo"

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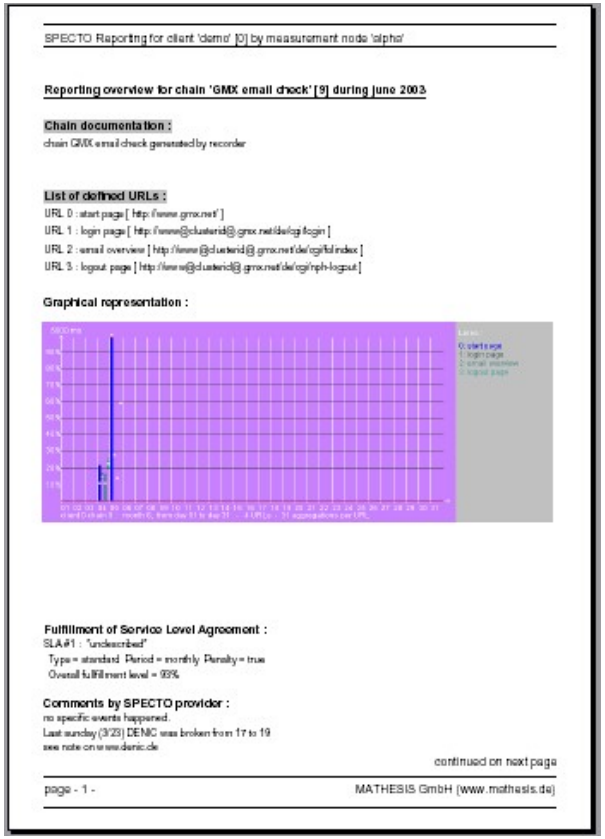
SPECTO service level agreements (SLA) : report

- SLA fulfillment reports may also be created on daily, weekly or monthly basis.
- They consist of daily measurement summaries and an overall summary
- A fulfillment percentage is computed
- Penalties may be computed



SPECTO Reporting for client 'demo' [0] by measurement node 'alpha'

Reporting overview for chain 'GMX email check' [9] during june 2003

Chain documentation :
chain GMX email check generated by recorder

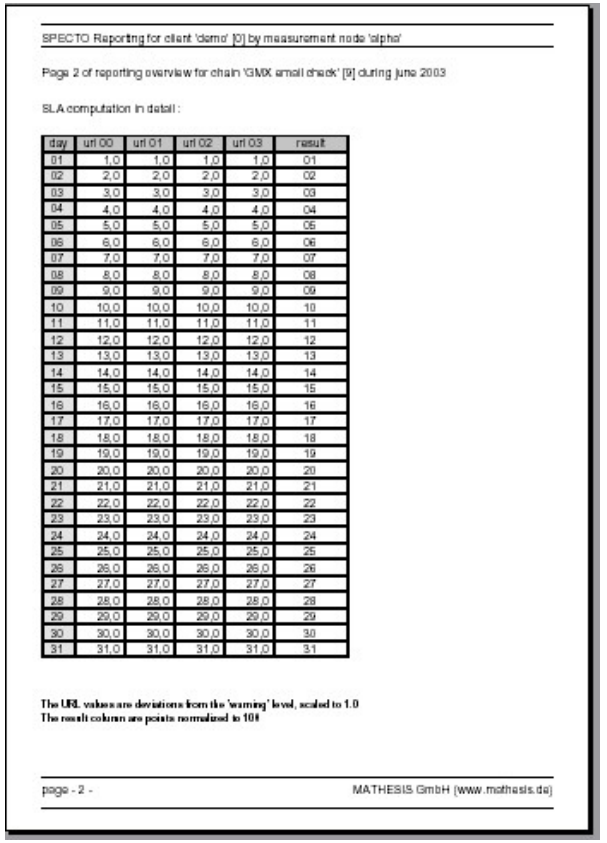
List of defined URLs :
URL 0 : start page [http://www.gmx.net/]
URL 1 : login page [http://www@clusterid@.gmx.net/de/cgi/login]
URL 2 : email overview [http://www@clusterid@.gmx.net/de/cgi/fcfolderindex]
URL 3 : logout page [http://www@clusterid@.gmx.net/de/cgi/nph-logout]

Graphical representation :

Fulfillment of Service Level Agreement :
SLA#1 : "undescribed"
Type = standard Period = monthly Penalty = true
Overall fulfillment level = 99%

Comments by SPECTO provider :
no specific events happened.
Last sunday (3/23) DENIC was broken from 17 to 19
see note on www.denic.de

continued on next page



SPECTO Reporting for client 'demo' [0] by measurement node 'alpha'

Page 2 of reporting overview for chain 'GMX email check' [9] during june 2003

SLA computation in detail :

day	url 00	url 01	url 02	url 03	result
01	1,0	1,0	1,0	1,0	01
02	2,0	2,0	2,0	2,0	02
03	3,0	3,0	3,0	3,0	03
04	4,0	4,0	4,0	4,0	04
05	5,0	5,0	5,0	5,0	05
06	6,0	6,0	6,0	6,0	06
07	7,0	7,0	7,0	7,0	07
08	8,0	8,0	8,0	8,0	08
09	9,0	9,0	9,0	9,0	09
10	10,0	10,0	10,0	10,0	10
11	11,0	11,0	11,0	11,0	11
12	12,0	12,0	12,0	12,0	12
13	13,0	13,0	13,0	13,0	13
14	14,0	14,0	14,0	14,0	14
15	15,0	15,0	15,0	15,0	15
16	16,0	16,0	16,0	16,0	16
17	17,0	17,0	17,0	17,0	17
18	18,0	18,0	18,0	18,0	18
19	19,0	19,0	19,0	19,0	19
20	20,0	20,0	20,0	20,0	20
21	21,0	21,0	21,0	21,0	21
22	22,0	22,0	22,0	22,0	22
23	23,0	23,0	23,0	23,0	23
24	24,0	24,0	24,0	24,0	24
25	25,0	25,0	25,0	25,0	25
26	26,0	26,0	26,0	26,0	26
27	27,0	27,0	27,0	27,0	27
28	28,0	28,0	28,0	28,0	28
29	29,0	29,0	29,0	29,0	29
30	30,0	30,0	30,0	30,0	30
31	31,0	31,0	31,0	31,0	31

The URL values are deviations from the 'warning' level, scaled to 1.0
The result column are points normalized to 100

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The SPECTO engine features a script processor allowing for custom enhancements.

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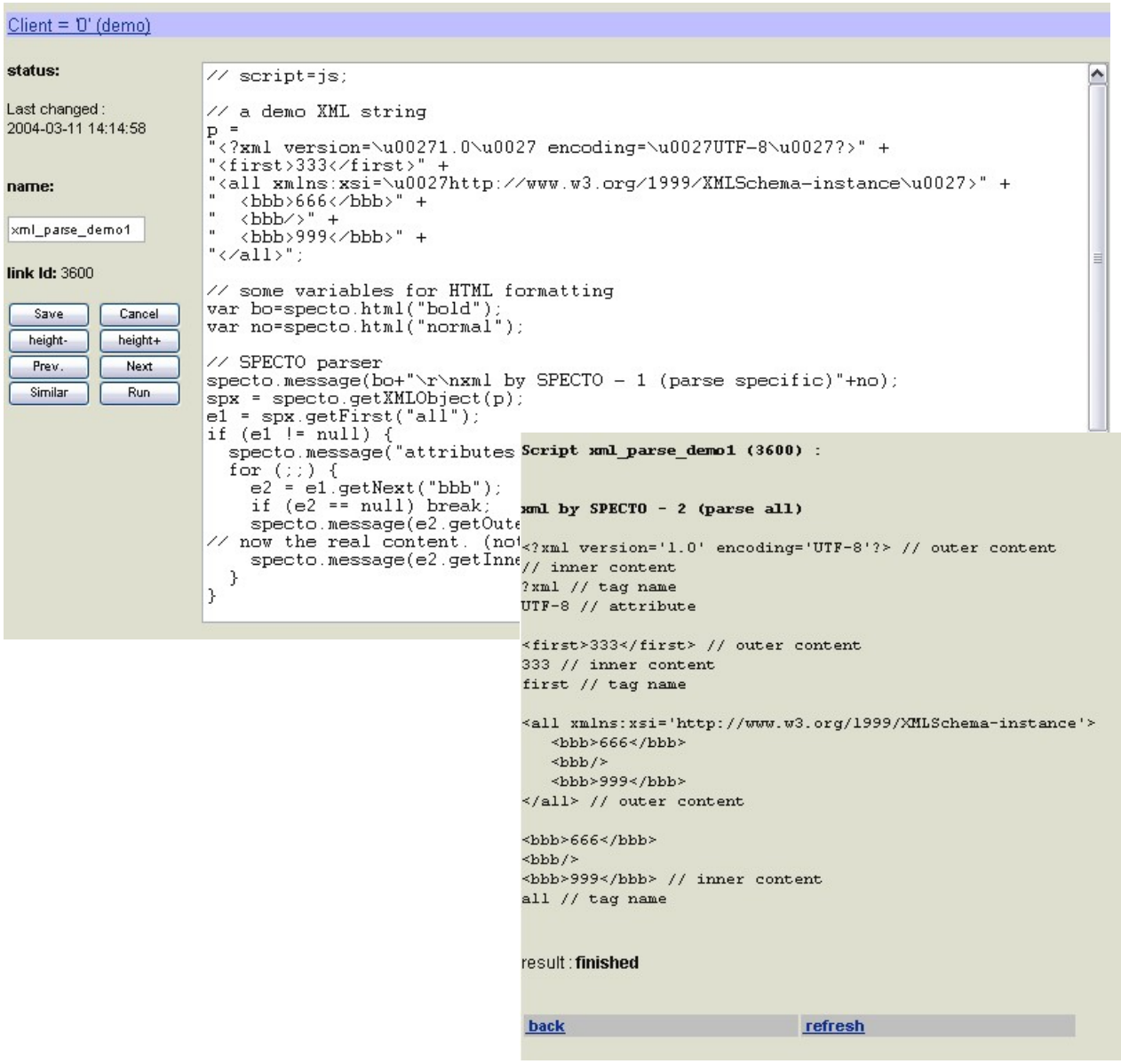
SPECTO scripting

- Scripts may be used as extensions to the chain processing (PBT, PBC, … PAU), within reporting, within the consoles, as batch elements or as individually executable programs
- Two script languages are available: 'specto script' and 'java script'
- JavScript conforms to the ECMA Script 1.5 level
- The script languages may access SPECTO components throgh the scripting libraries
- A test environment is available



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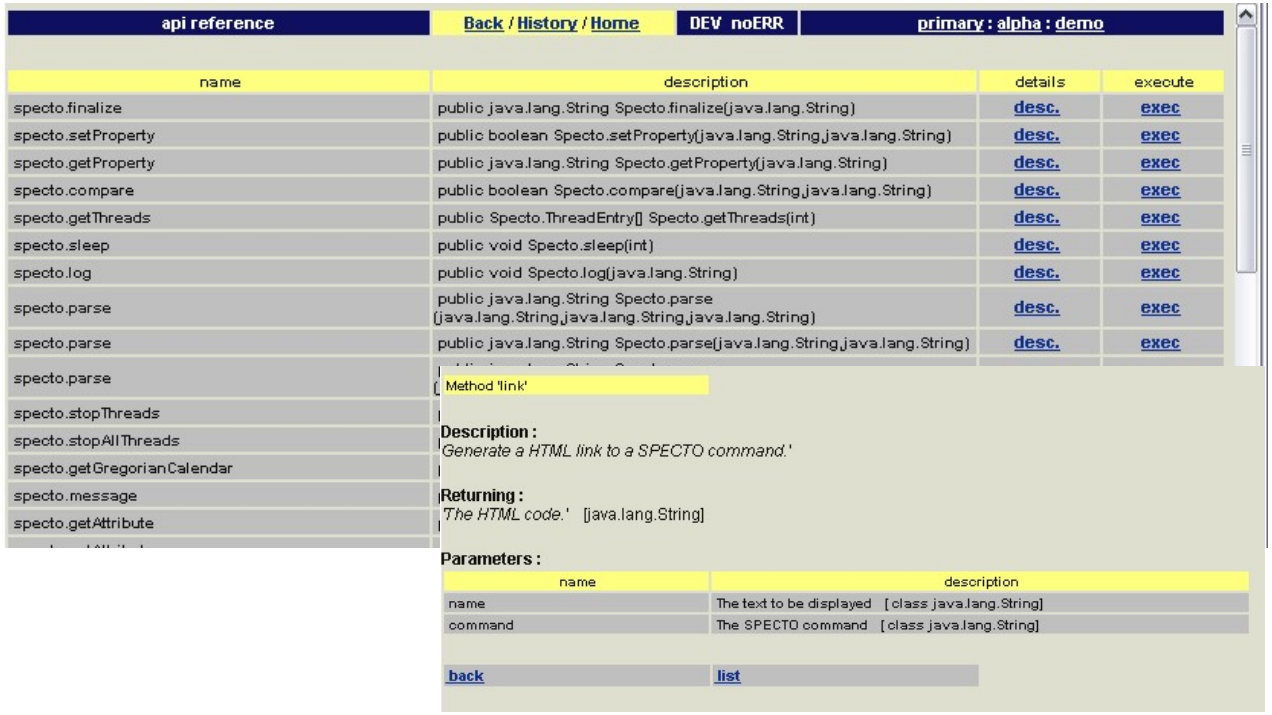
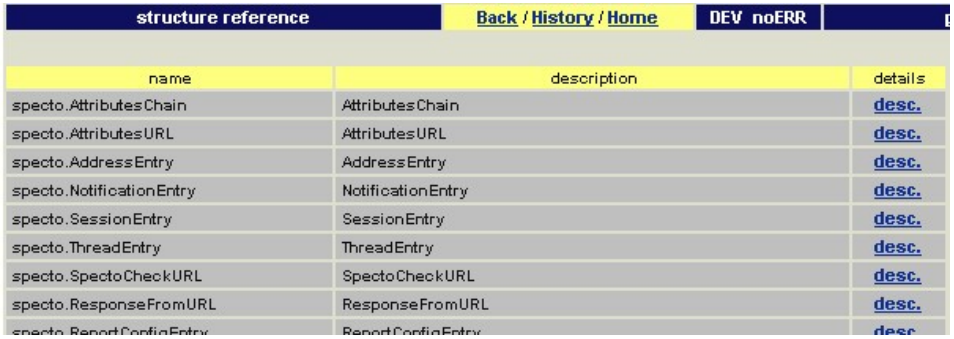
SPECTO scripting : library

- The objects of the script library (methods and structures) are available online.
- For every method a description is available
- Any method may be executed online.





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The SPECTO engine features several aspects for internal management.

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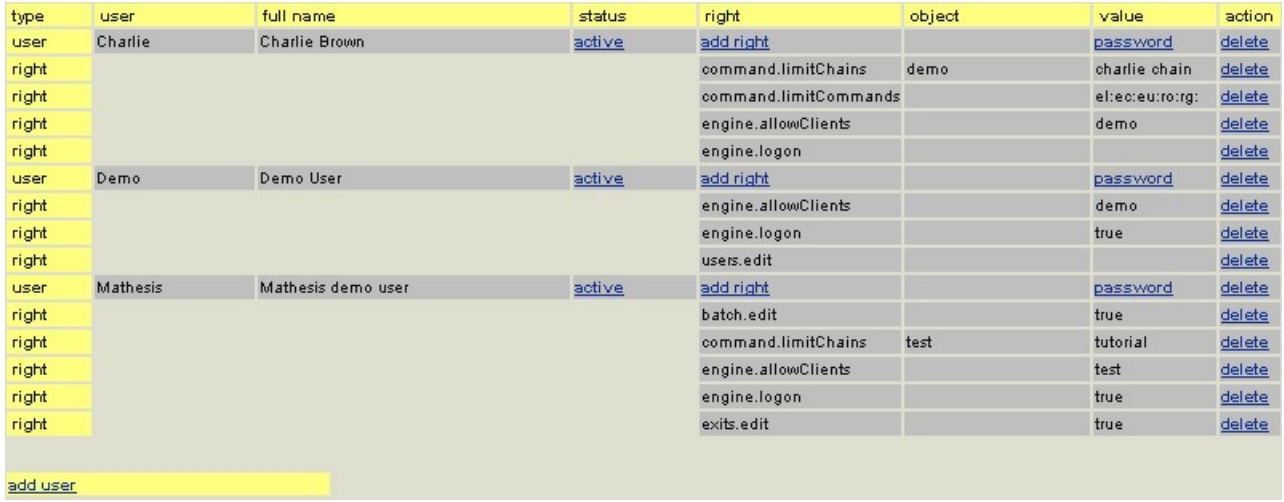
SPECTO user management

- Any SPECTO client automatically gets a 'master' user assigned.
- Additional users may be created, maintained and deleted.
- To any users sets of attributed rights may be assigned and revoked.
- All changes come in effect immediately
- Any users actions are recorded and may be reported



type	user	full name	status	right	object	value	action
user	Charlie	Charlie Brown	active	add right		password	delete
right				command.limitChains	demo	charlie chain	delete
right				command.limitCommands		el:ec:eu:ro:rg:	delete
right				engine.allowClients		demo	delete
right				engine.logon			delete
user	Demo	Demo User	active	add right		password	delete
right				engine.allowClients		demo	delete
right				engine.logon		true	delete
right				users.edit			delete
user	Mathesis	Mathesis demo user	active	add right		password	delete
right				batch.edit		true	delete
right				command.limitChains	test	tutorial	delete
right				engine.allowClients		test	delete
right				engine.logon		true	delete
right				exits.edit		true	delete

add user

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SPECTO commands, batch processor & background execution

- Commands and scripts may be executed automatically and repeatedly by the batch processor
- Execution of commands and scripts may be postponed to the background. Execution status and result is available.
- All executed commands are logged
- All commands executed by an user may be re-executed or re-edited

Batchs: list of active batchs

id	action	client	chain	URL	type	next at	command	period	base time	repeat
0	delete	0	0	0	C	2004-05-18 17:11:14	es ttt	7d 0h	2004-05-18 17:11:14	true
1	delete	0	0	0	C	2004-06-11 13:13:00	cs 3	monthly	2004-06-11 13:13:00	true

back

Background commands: list of executions

id	result	action	client	type	command	started at	ended at
0	show	delete	0	C	rl 0 0	2005-01-13 16:30:44	2005-01-13 16:30:46
1	show	delete	0	C	ra 0 0	2005-01-13 16:30:55	2005-01-13 16:30:55
2	show	delete	0	C	cs	2005-01-13 16:31:15	2005-01-13 16:31:15
3	show	delete	0	C	rg 2 0 1 500 ;group 2 3 4	2005-01-13 16:31:29	2005-01-13 16:31:29

again back

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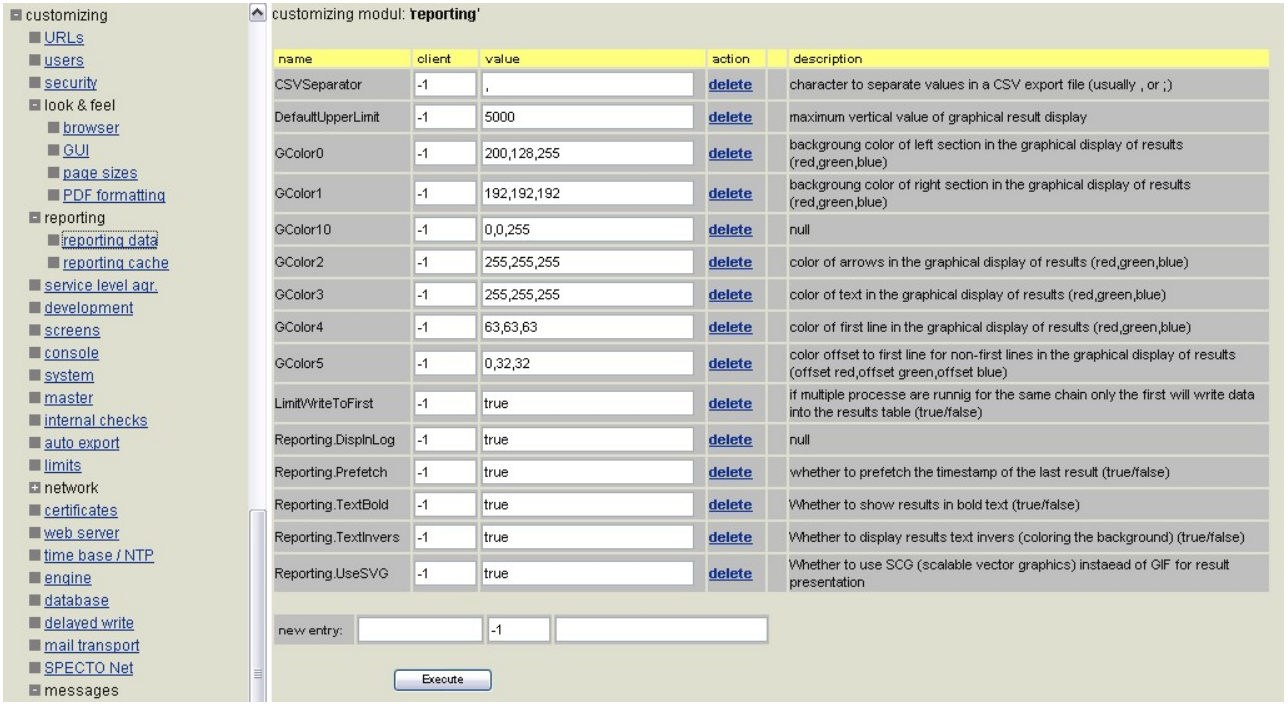
SPECTO customizing

- Many aspects of the SPECTO engine may be customized.
- Customizing is menu driven (‘root node ‘customizing’)
- Customizing may be client specific or cross-client.
- Any customizing parameter has a description.
- Customizing parameters may be reset to their default globally or individually



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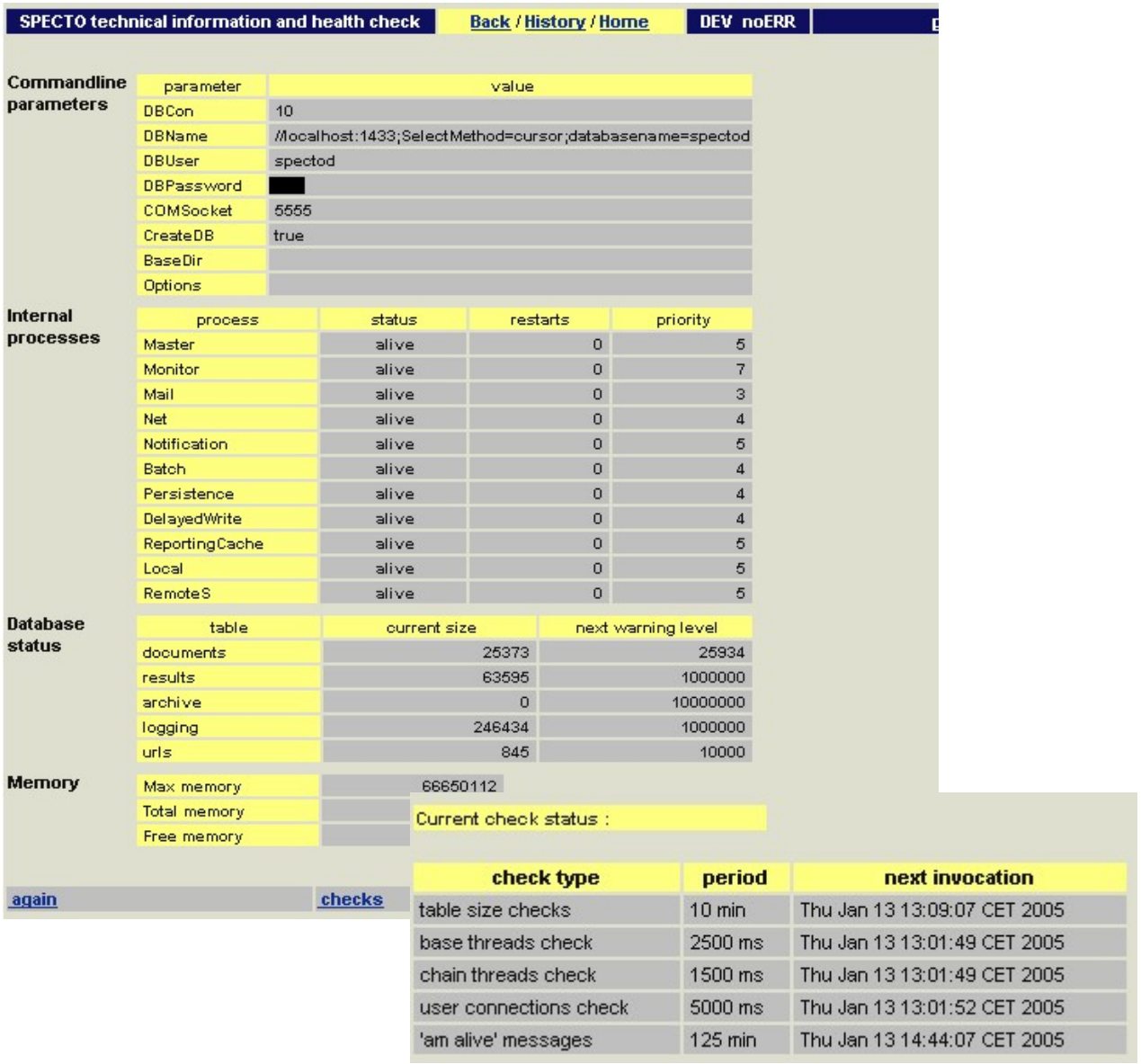
SPECTO internal 'high availability'

- All aspects of the SPECTO engine are continually determined
- The status may be checked in a 'health' page
- Erroneous tasks are restarted automatically
- Errors are reported as 'operator messages' and/or via email.
- 'am alive' messages may be send
- Stand by engine(s)
- Statistics
- table size checks
- Auto export
- Archiving



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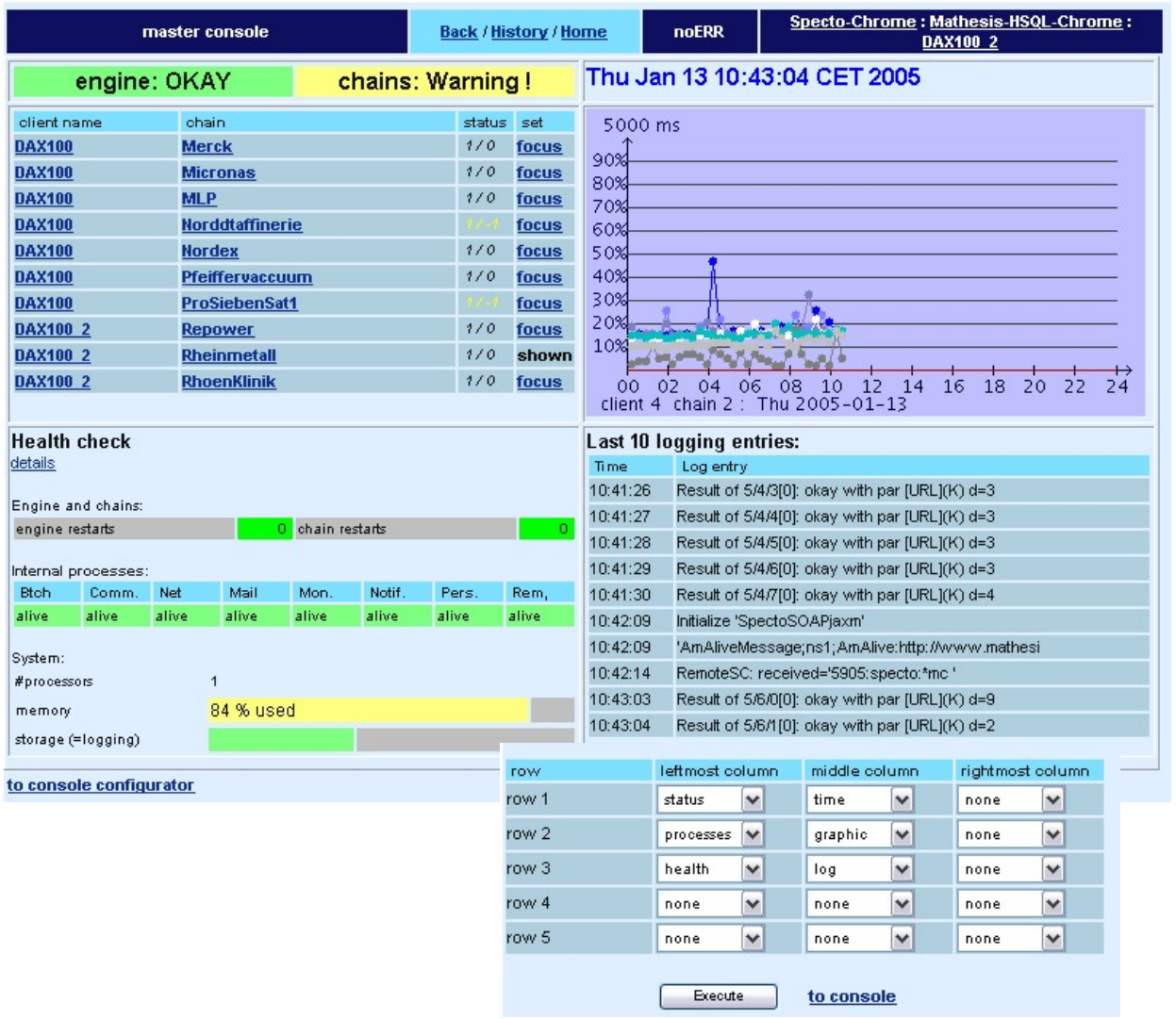
SPECTO consoles

- SPECTO consoles provide customizable overview on all aspects of a SPECTO instance
- A cross-client 'master console' and client specific 'client consoles' are available
- The console displays are refreshed automatically.



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SPECTO engine enhancements

- To extend the SPECTO engine a set of predefined exits is built into relevant places of the engine.
- Exits have to be implemented using the Java programming language
- A 'exit building tutorial' and sample implementations are available

SPECTO exits configuration | Back / History / Home | noERR | Specto-Chrome : Mathesis-HSQL-Chrome : DAX100_2

name	enabled	custom	class	method	calls	errors	
engine initialize	☐	☐	Specto.SpectoStandardExits	engineInitialize	0	0	exec
engine exit	☐	☐	Specto.SpectoStandardExits	engineExit	0	0	exec
before chain	☐	☐	Specto.SpectoStandardExits	beforeChain	0	0	exec
after chain	☑	☐	Specto.SpectoStandardExits	afterChain	2	0	exec
before URL	☑	☑	Mathesis.Specto.DemoExits	beforeURLLog	15	6	exec
after URL	☐	☐	Specto.SpectoStandardExits	afterURL	0	0	exec
at URL error	☐	☐	Specto.SpectoStandardExits	atURLError	0	0	exec
before notification	☐	☐	Specto.SpectoStandardExits	beforeNotification	0	0	exec
command extension	☑	☑	Mathesis.Specto.InternalExits	customCommand	0	0	exec
update of an object	☐	☐	Specto.SpectoStandardExits	objectUpdate	0	0	exec
0.5 second heartbeat	☑	☐	Specto.SpectoStandardExits	heartBeat	24	0	exec
URL type extension	☐	☑	Mathesis.Specto.InternalExits	custumURLType	0	0	exec

Save

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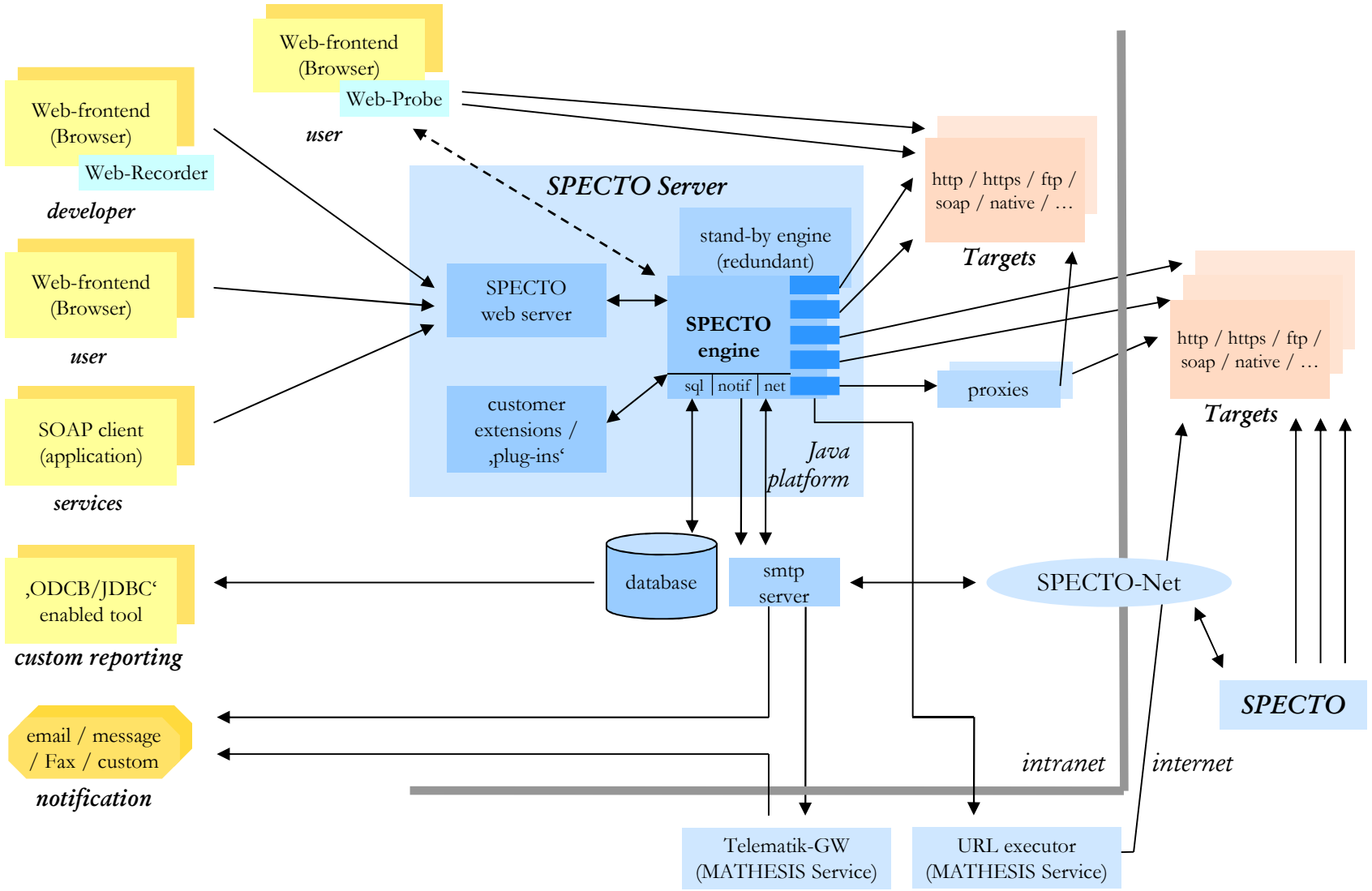
The following pages shows the overall structure of a typical SPECTO implementation.

SPECTO overall architecture



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