Super Webtrax

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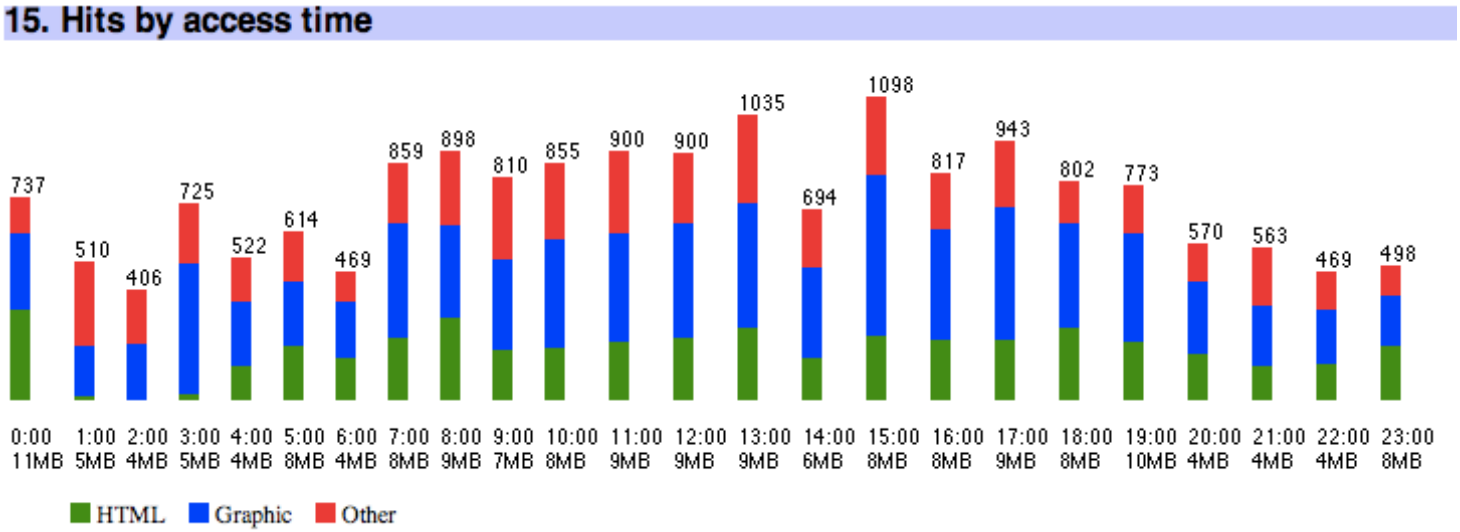


06/04/21 v2

Super Webtrax (SWT)

- Reads a daily log from a web server.
- Produces a web site report in HTML.
  - Multiple report sections (45)
  - Many options

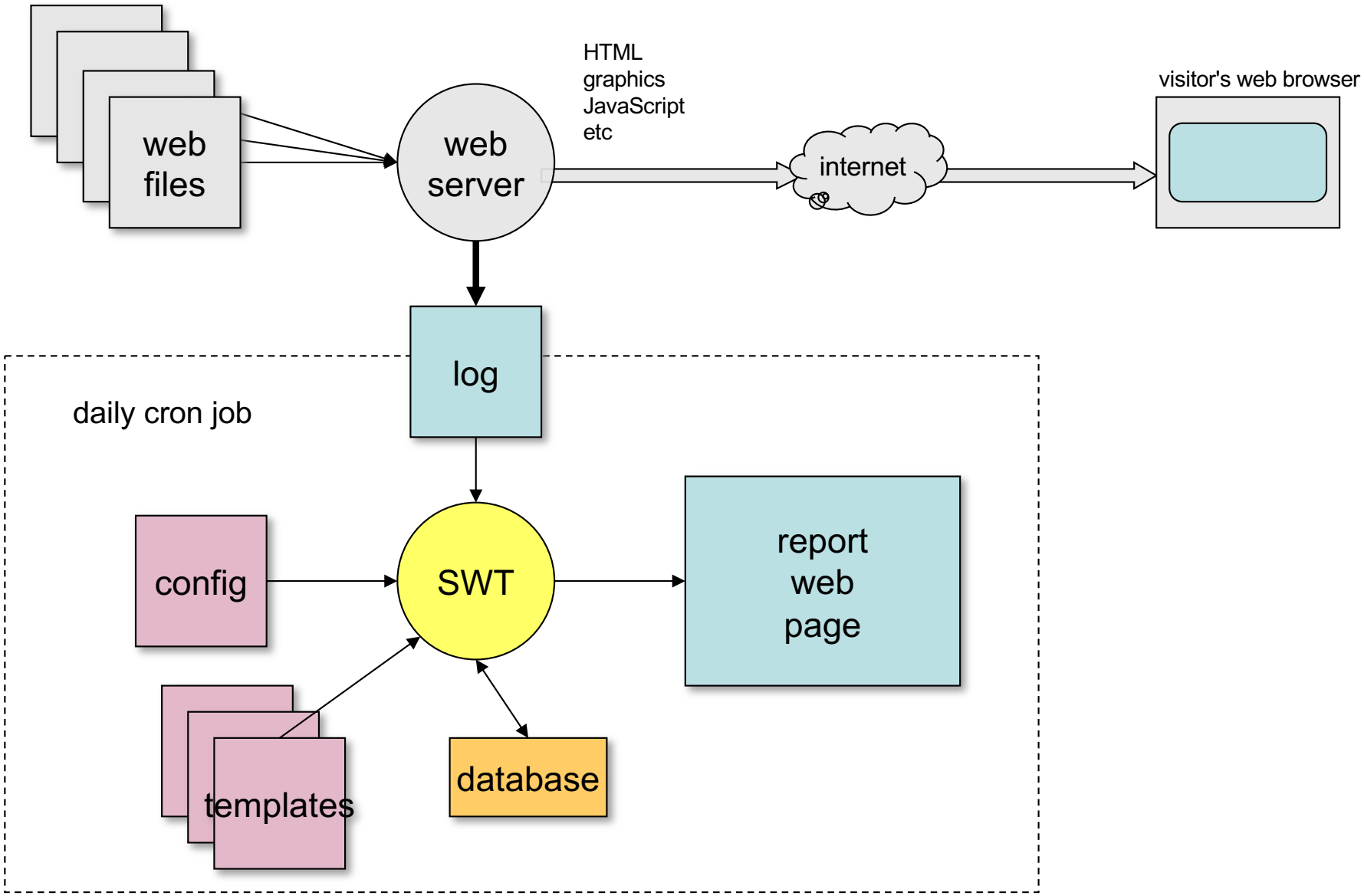
How I Use SWT

- I look at the report every day for
  - Signs of problems with the site or ISP
  - Signs of attacks or misuse
  - Level of traffic and resources
  - Popularity of pages
- Some sections provide more information if I see something interesting.

How SWT Works

- Web servers write a log entry every time they send a file to a user.
- Once a day, SWT loads a web server log into a MySQL database.
- SWT expands templates to produce HTML reports with graphs and tables.
- Many options.

Super Webtrax



What SWT Doesn't Do

- Real time analysis
  - Even if I had real-time log access, I don't have time to pore over them.
- Summaries by week or month
  - I'm not interested in this.
  - Would not be difficult to add.
- Ability to drill down on reports, e.g. show all sessions from a particular referrer
  - Would require interactive queries to the database.
  - Substantial rework of interface.
  - I run queries by hand for rare cases.
  - Queries against more than one day would need a huge database.

Confounding Factors

- SWT Ignores these
  - Can't tell people apart
    - logs only have IP addresses
  - Caching at visitor's browser not logged
  - Other proxy behaviors
  - Web crawlers and site slurpers
  - Misleading info from user
  - Web server load shedding

Requirements

- Analyzes NCSA Combined Format logs
- Uses MySQL 4.1 or later
- Uses Perl and shell scripting
- Uses **`expandfile`** (open source)
- Runs on Unix, Linux, or macOS
- Can use free geolocation data from MaxMind

SWT History

- 1995: Webtrax by John Callender
  - Perl, e-mail report
- 1996-2005: Webtrax by THVV
  - Perl
  - HTML report, graphical, multiple sections
  - Java pie charts
- 2006-present: Super Webtrax by THVV
  - Perl, MySQL
  - Faster
  - Uses `expandfile`
  - Many more report sections, charts, options
  - JavaScript pie charts, multiple chart views

Processing

- Run daily (cron)
- Need not run on web hosting server
- Output can be put on any web location
- One MySQL database for each log stream

Input Logs

- NCSA Combined format
  - Containing referrer and user agent
- Program **`combinelogs`**
  - Merge multiple logs, add file prefix
- Program **`logextractor`**
  - Extract one day’s usage from a running log
  - Look up domain names from IP
  - Look up geographical location from IP

Output Report Structure

- Navigation links at top and bottom
- User supplied preamble and postamble text
  - HTML, can be output of local program
- 48 Report Sections toggle between
  - Short view
  - Long view

When you click the ⊗

Auxiliary Reports

- Last 7 days of important visits
- Input for dashboard report
  - CSV file
- Input for GraphViz
- Others as defined by user, e.g.
  - Most recent error log entries
  - Disk usage summary and delta

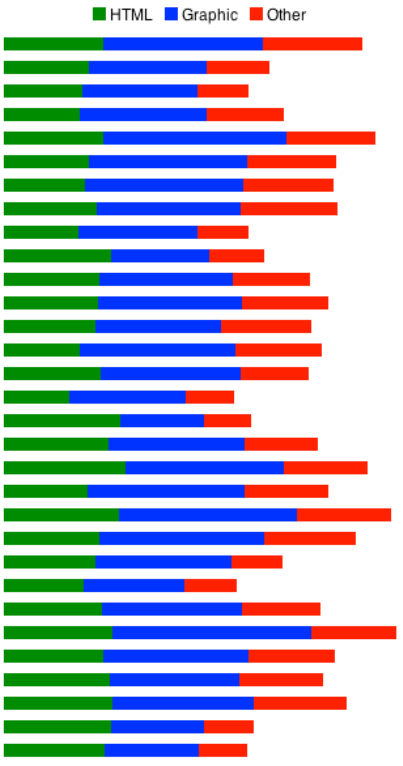
SWT Report Sections (1)

- Bar chart: Month Summary
  - Highest numbers red, lowest blue

1. Month Summary: 2124869 hits, 28715 MB since 2006-05-03 00:02:08

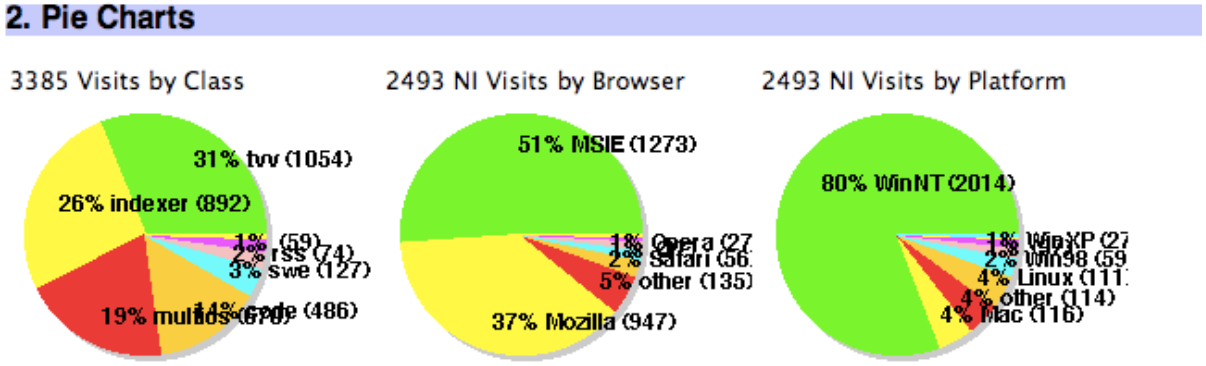
Super Webtrax version 11 2006-08-24 10:04

From	To	Visits	Mb	Hits	Pages
2006-09-18 00:01 Mon	2006-09-19 00:00	3385	182	16628	4654
2006-09-17 00:01 Sun	2006-09-18 00:00	2671	198	12281	3945
2006-09-16 00:01 Sat	2006-09-17 00:00	2423	161	11366	3671
2006-09-15 00:01 Fri	2006-09-16 00:01	2980	158	12948	3524
2006-09-14 00:01 Thu	2006-09-15 00:00	3168	214	17221	4629
2006-09-13 00:01 Wed	2006-09-14 00:01	3033	176	15405	3939
2006-09-12 00:01 Tue	2006-09-13 00:00	2969	173	15278	3789
2006-09-11 00:01 Mon	2006-09-12 00:00	2888	205	15436	4305
2006-09-10 00:01 Sun	2006-09-11 00:00	2347	132	11315	3458
2006-09-09 00:01 Sat	2006-09-10 00:00	2176	165	12071	5017
2006-09-08 00:01 Fri	2006-09-09 00:00	2469	249	14197	4451
2006-09-07 00:01 Thu	2006-09-08 00:00	2803	189	15003	4414
2006-09-06 00:01 Wed	2006-09-06 23:59	2802	196	14223	4273
2006-09-05 00:02 Tue	2006-09-06 00:00	2933	164	14723	3513
2006-09-04 00:01 Mon	2006-09-05 00:00	2683	199	14143	4477
2006-09-03 00:01 Sun	2006-09-04 00:00	2246	129	10653	3024
2006-09-02 00:01 Sat	2006-09-03 00:00	2194	372	11452	5402
2006-09-01 00:01 Fri	2006-09-02 00:00	2654	258	14535	4844
2006-08-31 00:01 Thu	2006-09-01 00:00	2881	328	16866	5645
2006-08-30 00:01 Wed	2006-08-31 00:00	2859	171	15011	3904
2006-08-29 00:01 Tue	2006-08-30 00:01	3124	211	17912	5348
2006-08-28 00:01 Mon	2006-08-29 00:01	2986	181	16308	4429
2006-08-27 00:01 Sun	2006-08-28 00:00	2316	157	12912	4265
2006-08-26 00:01 Sat	2006-08-27 00:00	2256	143	10768	3723
2006-08-25 00:02 Fri	2006-08-26 00:01	2749	193	14690	4543
2006-08-24 00:01 Thu	2006-08-25 00:00	2877	238	18143	5046
2006-08-23 00:01 Wed	2006-08-24 00:01	2839	190	15334	4625
2006-08-22 00:01 Tue	2006-08-23 00:00	2720	216	14766	4907
2006-08-21 00:01 Mon	2006-08-22 00:00	3043	198	15860	5025
2006-08-20 00:05 Sun	2006-08-21 00:00	2126	240	11564	4991
2006-08-19 00:01 Sat	2006-08-20 00:00	2114	198	11293	4669
31 days	**Avg**	**2700**	**199**	**14203**	**4401**



Report Sections (2)

- Pie Charts (70 possible, 5 shown in short view)
  - Hits by File Type
  - MB by File Type
  - Hits by TLD
  - Visits by TLD
  - MB by TLD
  - Visits by Hit Source
  - Visits by Class
  - Visits by Browser excluding indexers
  - Visits by Platform excluding indexers
  - Visits by Continent excluding indexers



Report Sections (3)

- Table: Analysis
  - Totals showing Hits, Visits, MB for various categories
- Bar chart: HTML pages
- Bar chart: Graphic files
- Bar chart: CSS files
- Bar chart: Flash files
- Bar chart: Files Downloaded
- Bar chart: Sound files
- Bar chart: XML files
- Bar chart: Java Class files
- Bar chart: Source files
- Bar chart: Other files
- List: Files not found

You can turn reports off if you don't need them.

Report Sections (4)

- Bar chart: Forbidden transactions
- Bar chart: Illegal referrers
- Vertical Bar chart: Hits by access time
- Bar chart: Visits by duration
- Bar chart: Visits by number of hits
- Bar chart: Visits by number of page views
- Bar chart: Visits by Top-level Domain
- Bar chart: Visits by Domain
- Bar chart: Visits by Second level Domain
- Bar chart: Visits by Third level Domain
- Bar chart: Visits by Authenticated User

Report Sections (5)

- Bar chart: Visits by Class
- Bar chart: Visits by Browser
- Bar chart: Hits by Query
- Bar chart: Visits by Search Engine
- Bar chart: Files crawled by Google
- Bar chart: Hits by Referrer
- Bar chart: Number of Hits by file size
- Bar chart: Hits by Local Query
- Bar chart: Repeated hits by Domain
- Bar chart: Attacks on the site (CGI Attacks, Hack Probes, Excess use)
- Bar chart: Transactions by server return code
- Bar chart: Transactions by protocol verb

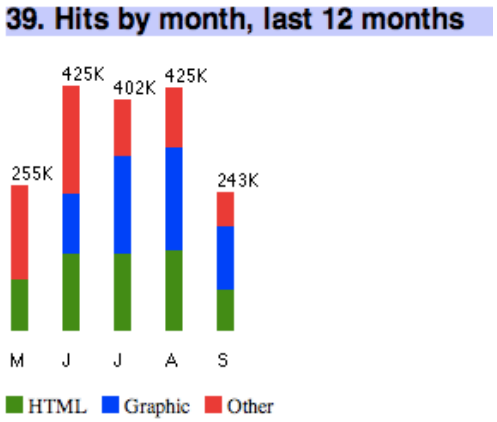
Report Sections (6)

- Visit Detail Report – chronological list of files accessed by each visit
  - Time
  - Visitor's domain (new domains in blue) (IP translated to domain and location)
  - pages (colored depending on filename) (graphics, **.css, .js** etc are not shown)
  - Query used to find page (green)
  - Time between pages
  - Total hits and KB, Browser ID
  - Visit class (user defined)
  - Authentication ID; authenticated sessions highlighted in yellow
- User defines which visits are "interesting." Short view has interesting visits.

11:52 201-016-239-042.static.ctbctelecom.com.br -- index.html 0:21, services.html 0:17, index.html [13, 57 KB, MSIE 6.0; Windows NT 5.1] {techtalk}
11:53 adsl-dyn84.91-127-243.t-com.sk -- thvv/threeq.html (images.google.sk: comix) [4, 43 KB, Firefox; Windows NT 5.1] {thvv}
12:04 209.212.4.130[us] -- thvv/private/computer-advice.html (webmailbb.juno: folder=Inbox&msgNum=00000A00:0017cVMs000027bN&bl) [5, 53 KB, MSIE 7.0; Windows NT 5.1] {thvv:hths}

Report Sections (7)

- Bar chart: Cumulative Non-search Hits by Referrer
- Bar chart: Cumulative Hits by Query
- Bar chart: Cumulative hits by domain
- Bar chart: Domains by days since last visit
- Bar chart: Cumulative hits on HTML Pages
- Vertical Bar chart: Hits by month, last 12 months
- Bar chart: Hits by year



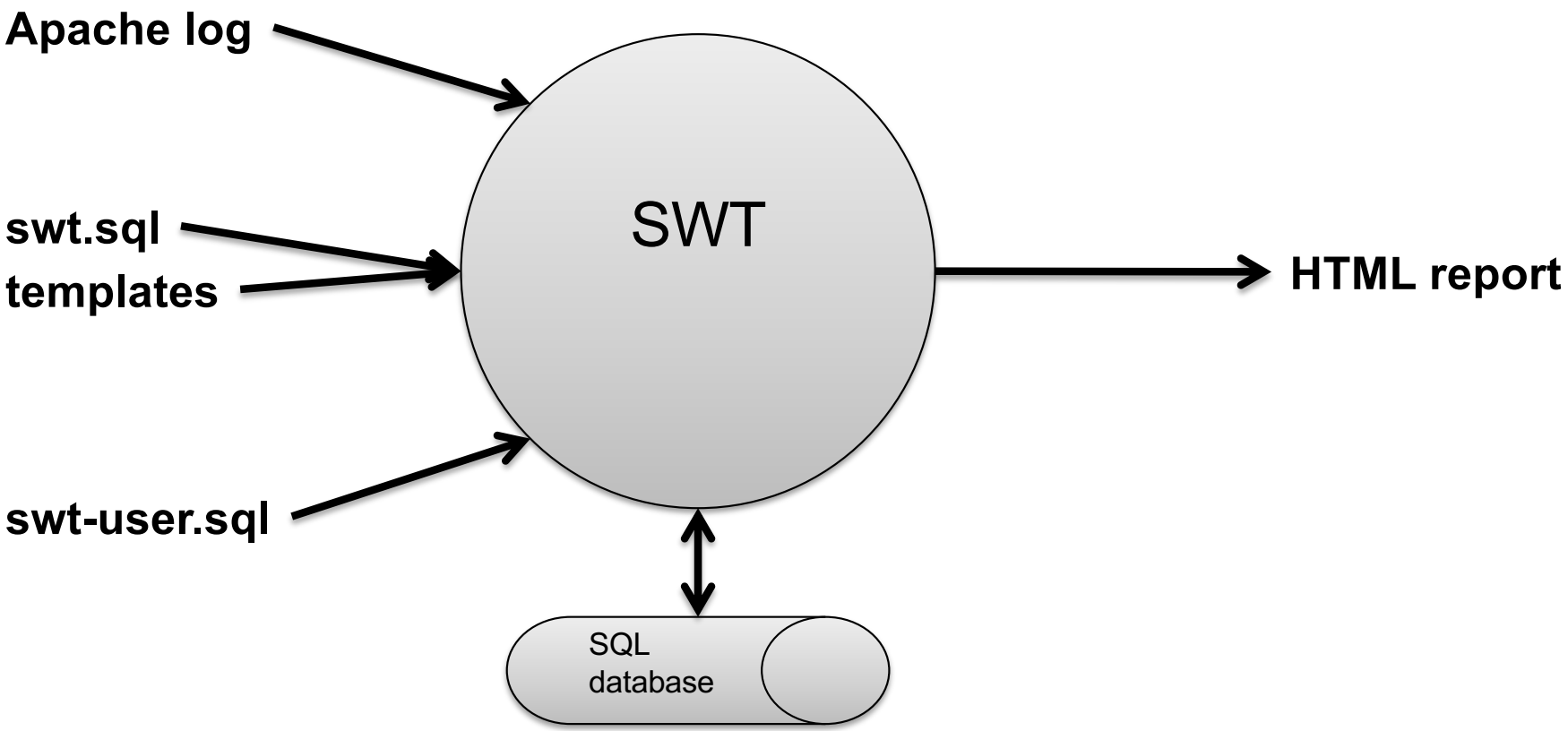
SWT Installation

- Assumes Unix skills
- Install MySQL, create database
- Install Perl and extensions
- Install Super Webtrax
- Run "configure"
  - Answer questions
  - Can re-run
- Run "install"

Extensibility

- How to create a new report
  - Define SQL queries
  - Create new template file
  - Define parameters
- Add configuration values to `swt_user.sql`
- Add to `swt: sectionrep myreport`
- Template in HTMX
  - Fetches the queries
  - Sets up headings
  - Executes the queries generating HTML lines
  - Generates short and long report panes
- Example: Funnel Report
  - for an electronic commerce client
  - summarized when visitors exited shopping sessions

Data flow


Apache log
swt.sql
templates
swt-user.sql
SWT
HTML report
SQL
database

Perl programs

- **`logvisits.pl`**
  - Reads Apache log
  - Writes **`log2db.sql`** which creates hits table
- **`visitdata.pl`**
  - reads hits table
  - writes **`visits.sql`** which creates visits table
- **`wordlist.pl`**
- **`expandfile`**
  - expands templates, reads database, writes reports
- **`printvisitdetail.pl`**
  - reads hits x visits, generates report section