

# Service Level Status (SLS)

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## Introduction

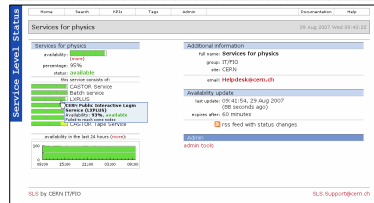
Nowadays, IT departments provide, and people use, computing services of an increasingly heterogeneous nature. There is thus a growing need for a status display that groups these different services and reports status and availability in a uniform way. The Service Level Status (SLS) system addresses these needs by providing a web-based display that dynamically shows availability, basic information and statistics about various IT services, as well as the dependencies between them.

## What it does

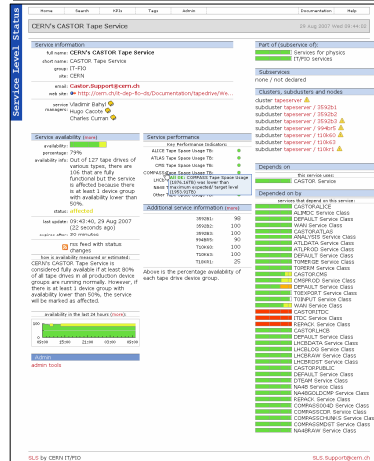
The default SLS entry page displays a view with top level services.



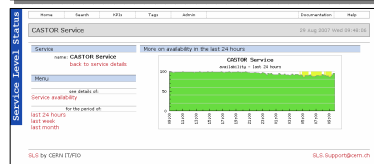
Users can drill down as necessary to find, for example, the details of the different services for physics.



... and then details of availability and status of a particular service, as well as its Key Performance Indicators (KPIs), dependencies and subservices.



Users can go further and see how availability and status of a given service evolved in the last week or month.



Services may embed SLS availability report on their Web pages

## Service availability and status

Service **availability** is a measure of the extent to which a given service is accessible and performing as expected. It is represented as a percentage: 100% means that the service is fully available and 0% indicates that the service is completely down.

Service **status level** is either **fully available**, **affected**, **degraded** or **not available** - indicated with the traditional green, yellow, orange and red colors respectively.

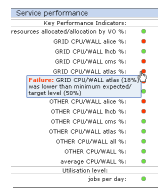
SLS bars represent availability (length of the green field) and status (color of the remaining field):

- service fully (100%) available
- service available in 95%
- service available in 87%, marked as *affected*
- service *degraded* (availability 50%)
- service available in 13%, marked as *not available*

Different status **thresholds** mean that two services with the same availability may have different status

## Key Performance Indicators

**Key Performance Indicators (KPIs)** are metrics that indicate whether a service meets its requirements (performance or other). For example: CPU delivered to VO as compared to quota.

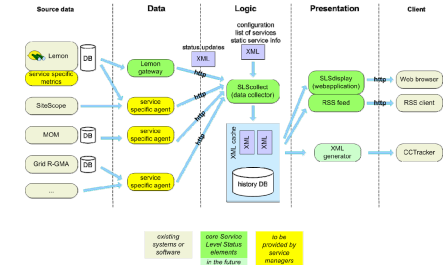


A KPI is represented as a green or red dot, depending whether the KPI condition is met on a given day.

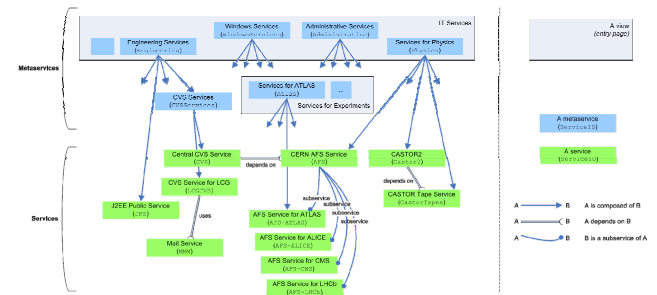
In some cases, the measured value is expected to be higher than the corresponding target value (e.g. tape pool size in GB), and in some lower (e.g. response time in ms).

## How it works

**Architecture:** SLS collects availability reports generated by service-specific monitoring tools, and displays them on the Web. SLS is not a monitoring tool - availability and status of each service are calculated by the service itself.



**Service model:** Services in SLS are grouped and organized in a hierarchical way - a service or a metaservice (a group of services) may have several subservices. Services are connected by their relative dependencies.



A view is a set of top level metaservices that is displayed at the SLS entry page. Several various views may be defined, for example: services grouped by VO, by group that provides them, all services at one page etc.

```
Static XML (for SDB service)
<?xml version="1.0" encoding="utf-8"?>
<service xmlns="http://cern.ch/SLS/XML/static">
  <id>SDB</id>
  <fullname>Service Database</fullname>
  <servicemanager>
    <servicemanager>$Lopinski</servicemanager>
  <datasource>curl -d -f -u update="false"
    http://sdb.cern.ch/updateXML
  </url/>
  <group>IT/FIO</group>
  <email>SDB.Support@cern.ch</email>
  <subservices>
    <subservice>SDB Offline Copy</subservice>
  </subservices>
  <dependencies>
    <dependency>Oracle APEX</dependency>
  </dependencies>
</service>
```

Adding a new service to SLS is trivial - service managers needs to create two XML files for a service: a static service description (static XML) and a dynamic availability information of the service (update XML), accessible on the Web.

SLS takes URL of the update XML from the static XML, retrieves it periodically and parses to get service status.

```
Update XML (for SDB service)
<?xml version="1.0" encoding="utf-8"?>
<serviceupdate xmlns="http://cern.ch/SLS/XML/update">
  <id>SDB</id>
  <timestamp>2007-08-23T15:25:00</timestamp>
  <availability>98</availability>
  <availabilityinfo>
    <Offline copy older than one hour</Offline copy older than one hour>
  </availabilityinfo>
</serviceupdate>
```

## ... and elsewhere

## SLS at CERN

SLS is in production at CERN since June 2006, and currently (August 2007) reports availability and status of over 350 services, including administrative applications, physics and infrastructure services, Grid sites, databases, engineering tools, Windows and Internet services, collaborative tools and many more.

SLS is released under the EU DataGrid software license (a BSD-style license) and is available at <http://cern.ch/project-sls>. There are no CERN-specific dependencies - SLS will work on Scientific Linux and requires only a few additional software packages. SLS is, or will soon be used at ASGC (Academia Sinica, Taiwan) and CNAF (Italy).

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