

Service Levels Cheat Sheet

Companion to [Quick primer on service levels and production strategy](#)
Andrew Walsh

THE THREE LEVELS

	What it is	Audience	Strictness
SLI	The measurement (e.g. success rate, latency)	Engineering	n/a
SLO	Internal target for an SLI	Engineering	Tightest
SLA	Contract with consequences	Customers	Looser than SLO

The gap between SLO and SLA is your buffer to mitigate before it costs money.

SLIS

- **Availability** - reachable and returning successful responses.
- **Latency** - how long responses take to reach the customer.

Cut by: customers & system clients, response types, version rollout, serving metrics.

Ship the client library? Then 4xx errors can be *your* errors. Monitor them as an SLI, cut by library version (user agent).

CANARY PERCENTILES

Crosses the SLO	Meaning	Response
p99	Maybe nothing yet	Watch
p95	Larger event likely coming	Investigate
p90	Very likely happening	Escalate
p50	It has happened	Full incident response

A p99 blip that recovers on its own is a ticket if it repeats, not a page.

ERROR BUDGET (30-DAY WINDOW)

total time = days × hours × minutes = 43,200 min
time budget = total time × (1 - SLO)
time to exhaust = time budget ÷ error rate

SLO	Budget	Roughly
99%	432 min	7.2 h
99.5%	216 min	3.6 h
99.9%	43.2 min	43 min
99.95%	21.6 min	22 min
99.99%	4.32 min	4 min 19 s
99.999%	0.432 min	26 s

BURN RATE (99.9% SLO, 43.2 MIN BUDGET)

Traffic failing	Budget gone in	Response
100%	43.2 min	Tier-1 page
50%	86.4 min	Tier-1 page
1%	3 days	Tier-2 page
0.5%	6 days	Ticket

RULE OF EXTRA 9'S

Each critical dependency targets one more nine than its caller: API 99.9% → AAA 99.99% → DB 99.999%. Not a hard rule; sometimes an extra 5 (99.95%) is enough.

SLA CHECKLIST

- **Measured** - which SLIs, measured from where.
- **Failure** - what counts (e.g. 5xx yes, 4xx no).
- **Window** - calendar month, rolling 30 days, per region or customer.
- **Exclusions** - maintenance, customer-caused, preview features.
- **Remedies** - service credits and how to claim them.

Keep it looser than your SLO. Never promise more than your dependencies deliver.

DURING AN INCIDENT: MITIGATE, DON'T FIX LIVE

- **Roll back** - bad releases are a common cause.
- **Expand capacity** - when resources are exhausted.
- **Re-route traffic** - fail over from bad zones or regions.
- **Isolate problem traffic** - by customer or request type.

PLAYBOOK FIELDS

Service · Owner · Title · Trigger · Description · Escalation · Troubleshooting Steps

Procedural, not investigative. Link it from the alert.

POST-MORTEM FIELDS

Title · Affected services · Ticket link · Summary · Root cause · Timeline · **Action items**

Blameless. Look at systems, procedures, and organization, not people.