

ELLYPUNK

Yuki Time

WEEKLY DIGEST

7-13 September 2026



This week

7-13 September 2026

Available archived editions, in their original date order.

TUESDAY / 8 September 2026

Yuki Time: The Retry Storm: When Recovery Traffic Becomes the Outage

3

[Open original online](#)

WEDNESDAY / 9 September 2026

Yuki Time: The Distant Memory Problem

4

[Open original online](#)

THURSDAY / 10 September 2026

Yuki Time: The Room Is Cold. Why Is the Server Hot?

5

[Open original online](#)

FRIDAY / 11 September 2026

Yuki Time: New Server, No Address: Follow the DHCP Handshake

6

[Open original online](#)

Only retained editions are included; gaps have not been filled.

Copyright Ellypunk. Contains AI-generated artwork.

ellypunk.com



YUKI TIME

THE RETRY STORM

WHEN RECOVERY TRAFFIC BECOMES THE OUTAGE

HARDWARE & INFRASTRUCTURE
ADVANCED

1 THE BLIP

“ The backend slowed down.
The first attempt may still be running.
— YUKI

1 USER ACTION → 1 REQUEST → TIMEOUT

2 THE AMPLIFIER

“ Three attempts at two layers
can reach the backend nine times.
— YUKI

3 ATTEMPTS × 3 ATTEMPTS = 9

One initial attempt + up to two retries at each layer.



WORST CASE: both layers retry independently and every earlier attempt reaches the dependency.

3 THE FEEDBACK LOOP

Retries add work exactly when capacity is already scarce.



More traffic is not more recovery.

4 BREAK THE LOOP

“ Give retries one owner.
Bound them, back off and add jitter.
— YUKI

- RETRY ONLY TRANSIENT FAILURES
- BOUND ATTEMPTS + TOTAL RETRY VOLUME
- EXPONENTIAL BACKOFF + JITTER
- SHED EXCESS LOAD SO ACCEPTED WORK FINISHES

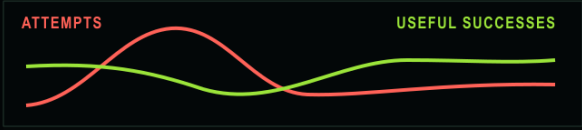
RETRY CONTROL POINT

Retry only work that is safe to repeat. Use idempotency for side-effecting operations.

5 PROVE RECOVERY

“ Inject delay. Watch attempts, queue depth
and useful successes—not requests alone.
— YUKI

✔ BACKEND RECOVERS



OBSERVE: attempt rate · queue depth · latency · useful successes

Worst-case dependency attempts = product of attempt limits at each retrying layer.

Backoff does not replace an end-to-end deadline.

Honor Retry-After or equivalent overload guidance when supplied.

Use idempotency when repeating an operation could duplicate effects.

A retry spends capacity.
Budget it like load.

ONE OWNER · BOUNDED ATTEMPTS · BACKOFF + JITTER · SHED OVERLOAD

Sources: AWS Builders Library · Google SRE · Microsoft Learn

YUKI TIME · 08 SEP 2026



YUKI TIME

THE DISTANT MEMORY PROBLEM

WHEN FAST CORES WAIT ON REMOTE RAM

HARDWARE & INFRASTRUCTURE
EXPERT

1 THE SYMPTOM

“ Half the workers stall—
but CPU and RAM are not full.
— YUKI

SAME CODE · SAME SERVER · DIFFERENT MEMORY DISTANCE

2 FIND THE MAP

“ This two-socket server has
two memory neighbourhoods.
— YUKI

NUMA: access time depends on the CPU-to-memory location.



3 THE CROSSING

“ The thread moved.
Its pages did not.
— YUKI



REMOTE ACCESS ADDS LATENCY AND CROSS-SOCKET TRAFFIC

The penalty depends on platform, pressure and access pattern—measure it.

4 PLACE AS A UNIT

“ Place the worker and its memory
on the same node—then measure again.
— YUKI

- CHOOSE THE CPU NODE
- ESTABLISH PLACEMENT BEFORE FIRST TOUCH
- SET CPU AFFINITY + MEMORY POLICY TOGETHER
- RETEST UNDER REAL LOAD

```
numactl --cpunodebind=0 --localalloc ./worker
```

localalloc prefers current-node memory and may fall back.

5 PROVE THE PLACEMENT

MAP	PAGES	DETAIL	RUNTIME
<code>numactl --hardware</code>	<code>numastat -p PID</code>	<code>/proc/PID/numa_maps</code>	local/remote DRAM + workload latency

REMOTE PAGES + HIGHER LATENCY

LOCAL PAGES + LOWER LATENCY

Allocation counters show placement; use platform counters for actual remote loads.

Automatic NUMA balancing can migrate pages, but scanning, faults and migration have overhead.

Binding can reduce scheduler flexibility. Wide or changing workloads may fit interleave or automatic balancing better.

Performance follows placement.
Keep compute close to its memory.

MAP IT · PLACE IT · MEASURE IT · RECHECK UNDER LOAD

Sources: Linux kernel + man-pages · Intel performance guidance



YUKI TIME

THE ROOM IS COLD. WHY IS THE SERVER HOT?

A RACK AIRFLOW MYSTERY

HARDWARE & INFRASTRUCTURE
INTERMEDIATE

1 THE ALARM

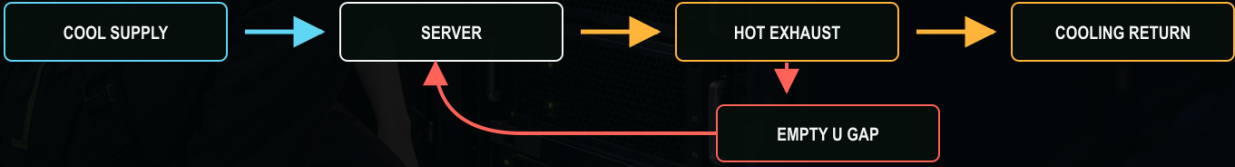
“ The room sensor says cool.
This server says otherwise.
— YUKI

ROOM AIR OK · SERVER INLET HOT · FANS RISING

2 FIND THE LOOP

“ Cool air reaches the aisle.
Hot exhaust finds a shortcut back.
— YUKI

RECIRCULATION = HOT EXHAUST MIXES INTO THE EQUIPMENT INLET



THE SERVER RE-INHALES ITS OWN HEAT

3 MEASURE THE INLET

“ Measure where the server breathes—
not across the room.
— YUKI

ROOM SENSOR ≠ SERVER INLET

- TOP INLET PROBE
- MIDDLE INLET PROBE
- LOW INLET PROBE

Compare each rack zone with the limits for the actual equipment.

A room average can hide a top-of-rack hot spot.

4 SEAL THE SHORTCUT

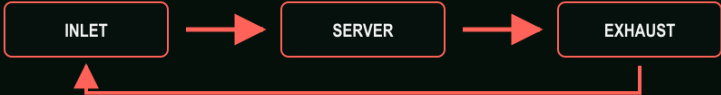
“ Close the empty rack spaces.
Keep supply and exhaust apart.
— YUKI

- FILL UNUSED FRONT U-SPACES
- SEAL RACK + CABLE-PASS-THROUGH GAPS
- KEEP THE REAR EXHAUST PATH CLEAR
- PRESERVE THE EQUIPMENT AIRFLOW DIRECTION

Most rack servers flow front to rear. Follow the manufacturer for the actual equipment.

5 PROVE THE AIRFLOW

BEFORE · EXHAUST LOOPS TO INLET



AFTER · SUPPLY THROUGH, EXHAUST AWAY



INLET
server-front temperature

COMPONENTS
CPU · memory · storage

FANS
speed and health

ALERTS
thermal events

RETEST UNDER THE SAME REPRESENTATIVE LOAD

Blanking panels fix a recirculation path—not failed fans or inadequate cooling capacity.

Cool the air the server
actually inhales.

MEASURE IT · SEPARATE IT · SEAL IT · RETEST UNDER LOAD

Sources: ASHRAE · ENERGY STAR · Dell



YUKI TIME

NEW SERVER, NO ADDRESS FOLLOW THE DHCP HANDSHAKE

HOW A HOST GETS IPv4 CONFIGURATION

HARDWARE & INFRASTRUCTURE
BEGINNER

1 THE PROBLEM

“ The cable is live. The network is there.
But this host still needs an IPv4 configuration.

— YUKI

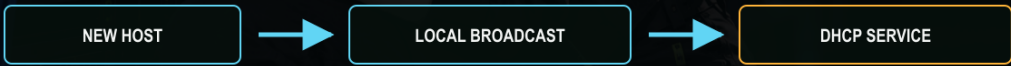
LINK UP · NO ADDRESS · DHCP CLIENT STARTS

2 DISCOVER

“ I do not know my subnet yet—
so I broadcast a discovery.

— YUKI

DHCPDISCOVER · CLIENT → LOCAL SUBNET



0.0.0.0:68 → 255.255.255.255:67

A CONFIGURED RELAY CAN FORWARD THIS TO ANOTHER SUBNET.

3 OFFER

“ A DHCP server proposes an address,
a lease and useful options.

— YUKI

EXAMPLE OFFER · TEST-NET-1

ADDRESS	192.0.2.40	MASK	255.255.255.0 (/24)
ROUTER	192.0.2.1	DNS	192.0.2.53
LEASE	DURATION SET BY SERVER		

OFFER ≠ ACTIVE LEASE The client may receive more than one offer.

4 REQUEST + ACK

“ The request names the choice.
The ACK confirms the binding.

— YUKI



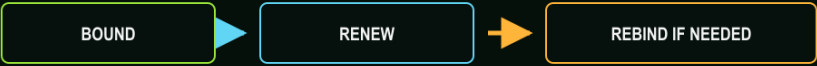
Other offering servers learn that their offers were not selected.

After ACK, the client can finish configuration and may check for an address conflict.

5 BOUND + RENEW

“ Now the lease is active.
Renew it before it expires.

— YUKI



If the lease expires without renewal, the client stops using that address.

DHCP can supply address, mask and options. It does not prove DNS, gateway or wider-network health.

THIS PAGE IS DHCPv4 · DHCPv6 USES A DIFFERENT MESSAGE MODEL.

TYPICAL NEW LEASE · DISCOVER · OFFER · REQUEST · ACK

DHCP proposes, confirms and renews
a timed IPv4 configuration.

DISCOVER · OFFER · REQUEST · ACK

Sources: IETF RFC 2131 · RFC 2132 · RFC 5737 · RFC 8415