SAMPLE AUDIT RESULT

Rendering print files: what to fix before replacing the tool

> A real architecture review, October 2026. The company is anonymized and volumes are rounded. “Estimate” means a calculation, not a measurement.

Company: e-commerce, personalized apparel and merchandise made to order.
Infrastructure: ~20 cloud Windows servers running old versions of Illustrator and Photoshop, a job queue, a job runner on each server.
What we looked at: why some products never reach the store, why new products wait for hours, and whether the rendering tool should be replaced.

Summary for the owner

Main finding. Products go missing not because of the rendering tool, but because of five bugs in the company's own job runner. Any new tool would have inherited them. So we fix how the system runs and cut the bill first, and settle the replacement question with a pilot.

Three decisions I recommend:

1. Stop losing jobs: a job leaves the queue only after it succeeds, failures are retried, and every expected file is checked.
2. Give new products their own queue, so they never wait behind large batches.
3. Right-size the servers, and once step 1 is done, move to cheaper servers that scale with the queue.

What not to do now: don't replace the rendering tool as the first step (reasons below).

~$6.7k	~$4.2k	~$1–3.5k
rendering bill per month today	after step 3	with servers scaling to the queue (estimate)

How a job runs today

1. A new product or order creates a job in the queue.
2. A free server picks the job up. **The job is removed from the queue immediately.**
3. Illustrator inserts the customer's text and saves the print file (PDF and a 300 ppi PNG).
4. Photoshop builds the gallery image and store mockups.
5. The design is marked done and the product appears in the store.

Each server handles one job at a time, which is why CPU looks idle. About 600k jobs pass through each month. After a spike of ~19k jobs in two hours, the longest wait reached 8.5 hours.

Bottlenecks

WHAT HAPPENS	WHERE IT SHOWS	WHAT IT CAUSES	PRIORITY
A job leaves the queue before rendering	Runner code	A server restart loses the job for good	1
Graphics software errors are not caught	Runner code	The runner restarts, nothing is retried	1
A design is "done" once any one file exists	API code	Products with half their files go through	1
Nobody acts on the health-check status	Runner code	Problems surface only through complaints	2
Stuck-job cleanup never fires (units bug)	Cleanup code	Stuck jobs pile up	2
New products share a queue with large batches	Queue metrics	Waits of up to 8.5 h	2
Servers are larger than needed and run 24/7	Cloud bill	~$6.7k a month	3
The required software versions can no longer be downloaded	Server setup	New servers only from a disk image	Long term

Options considered

OPTION	PER MONTH	PRINT QUALITY	DECISION
A. Keep the current tool, fix how it runs	~$1–3.5k (estimate)	As today	Do now
B. The graphics vendor's cloud API	quote only	Near-identical	Get a quote wins only under ~1¢ per design
C. Canva API	—	No color or DPI control	Out 5k exports a day cap vs ~21k needed
D. Template SaaS tools	~$4–35k (estimate)	Font substitution risk	Out costs more than current servers
E. Own renderer on Linux	<$0.6k (estimate)	Controllable, must be proven	Pilot

The hard part of B and E is the same: templates keep their editable fields in a closed format. How long converting one template takes is the biggest unknown, somewhere between 20 minutes and a day. The pilot answers it.

What to change, in what order

1 Stop losing jobs

What changes: a job leaves the queue only after a successful render, failures are retried automatically, a design is done only when every file exists.
How we know it's done: over 2 weeks, no product with an incomplete file set; a server restart loses no jobs.
Build or buy: changes to the existing runner. Your team can do it from this description.
Time: 1–2 weeks.

2 A separate queue for new products

What changes: jobs for new products go to their own priority queue and never wait behind bulk batches.
How we know it's done: a new product reaches the store within the target time even at peak load.
Time: up to 1 week.

3 Servers sized to real load

What changes: older servers move to a smaller size one by one. After step 1, when jobs can no longer be lost, part of the fleet moves to cheaper servers that are added and removed with queue length.
How we know it's done: the rendering bill is below ~$4.2k a month and processing time hasn't grown.
Time: 2–3 weeks.

4 A replacement pilot on one template family

What changes: ~10 real templates are converted and rendered side by side with the current system. Nothing changes for customers.
How we know it's done: we know how long one template takes to convert, and the quality checks below pass. This decides between B and E.
Time: 1–3 months.

Proving print quality before switching

- ~300 past jobs of every type (long names, numbers, text on a curve, every garment color) rendered both ways.
- Automated checks: exact size, 300 ppi, transparency, no live fonts in any PDF, color difference on solid fills $\Delta E \le 2$.
- A short physical print run, judged blind by production.
- No template family switches until every hard check passes and a person has reviewed each flagged difference.

What not to do now

- **Replace the rendering tool first.** The five causes of loss live in the company's own code and would move to any new tool.
- **Canva or template SaaS.** One hits a hard cap, the others cost more than today's servers.
- **Move all templates at once.** Family by family, once the pilot shows the conversion cost.

Budget and monthly costs

STEP	WHO CAN DO IT	RENDERING BILL AFTER THE STEP
Today	—	~$6.7k/month
1. Stop losing jobs	Your team or me	unchanged
2. Separate queue	Your team or me	unchanged
3. Right-sized servers	Your team	~$4.2k/month, ~$1–3.5k with scaling (estimate)
4. Pilot	Me together with your team	depends on B or E

Risks and when to stop

- If the vendor quotes above ~1¢ per design, option B is out.
- If converting a template takes close to a day, option E only pays off for the most-used families.
- If a template family fails the quality checks, it stays on the current tool on one or two servers.
- Before moving to scaling servers, get written confirmation of the graphics software licensing on servers.

Still open

- The vendor's cloud API price: quote only.
- How many templates are actually in use: that, not the number of stored files, sets the migration size.
- Seconds per job today: needed to size step 3 and price option B precisely.

What I need from you

- One person who makes the call on each step.
- Read access to the runner code, queue metrics and the cloud bill.
- Agreement with production on a short test print for the pilot.

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