StreamForge Cloud Scaling Guide (India)

Budget Cloud Solutions for 5 Concurrent Streams

â˜ï¸ Current Cloud Analysis

Your Current Setup (Hetzner)

- **Instance**: 2-core AMD EPYC-Milan, 8GB RAM
- **Current cost**: ~â‚¹4,000-5,000/month
- **Problem**: Can handle only 0.5 streams
- **Need**: Scale to 5 streams with multiple quality levels

ðŸ’° Cloud Options in Indian Rupees

Option 1: Hetzner (Current Provider) - RECOMMENDED ðŸš€

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Upgrade Options:
â”œâ”€€ CPX31 (4 cores, 8GB): â‚¹4,800/month
â”œâ”€€ CPX41 (8 cores, 16GB): â‚¹9,600/month
â”œâ”€€ CPX51 (16 cores, 32GB): â‚¹19,200/month
â””â”€€ CCX33 (8 cores, 32GB): â‚¹14,400/month

Best for 5 streams: CPX41 (8 cores, 16GB)
Cost: â‚¹9,600/month (â‚¬115)
Performance: 5+ streams with optimized settings
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Option 2: DigitalOcean (India Region) ðŸŒŠ

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Droplet Options:
â”œâ”€€ c-8 (8 cores, 16GB): â‚¹12,000/month
â”œâ”€€ c-16 (16 cores, 32GB): â‚¹24,000/month
â”œâ”€€ CPU-Optimized c-8: â‚¹10,800/month
â””â”€€ Memory-Optimized m-8: â‚¹14,400/month

Best choice: CPU-Optimized c-8
Cost: â‚¹10,800/month ($130)
Performance: 5+ streams
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Option 3: Vultr (Multiple Locations) âš¡

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High Performance Instances:
â”œâ”€€ 8 cores, 16GB RAM: â‚¹8,400/month
â”œâ”€€ 12 cores, 24GB RAM: â‚¹12,600/month
â”œâ”€€ 16 cores, 32GB RAM: â‚¹16,800/month
â””â”€€ Dedicated CPU 8-core: â‚¹11,200/month

Best value: 8-core, 16GB
Cost: â‚¹8,400/month ($100)
Performance: 5+ streams easily
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Option 4: Linode (Akamai) ðŸ”¥

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Dedicated CPU Plans:
â”œâ”€€ 8 cores, 16GB: â‚¹10,000/month
â”œâ”€€ 16 cores, 32GB: â‚¹20,000/month
â”œâ”€€ High Memory 8-core: â‚¹13,200/month
â””â”€€ GPU instances: â‚¹40,000+/month

Best option: 8-core Dedicated CPU
Cost: â‚¹10,000/month ($120)
Performance: Excellent for transcoding
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Option 5: Indian Cloud Providers ðŸ‡®ðŸ‡³

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Providers:
â”œâ”€â”€ Yotta Cloud: 8 cores, 16GB - â‚¹6,000/month
â”œâ”€â”€ CtrlS Cloud: 8 cores, 16GB - â‚¹7,200/month
â”œâ”€â”€ ESDS Cloud: 8 cores, 16GB - â‚¹5,400/month
â””â”€â”€ Netmagic Cloud: 8 cores, 16GB - â‚¹8,400/month

Cheapest: ESDS Cloud
Cost: â‚¹5,400/month
Note: Limited international bandwidth
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ðŸ† Cloud Comparison (5 Streams Capability)

Provider	Instance Type	Cores	RAM	Monthly Cost	Performance	Reliability
Hetzner CPX41	Shared CPU	8	16GB	â‚¹9,600	Excellent	High â
Vultr High Perf	Dedicated	8	16GB	â‚¹8,400	Excellent	High
Linode Dedicated	Dedicated	8	16GB	â‚¹10,000	Excellent	High
DigitalOcean	CPU-Optimized	8	16GB	â‚¹10,800	Good	Medium
ESDS (Indian)	Shared	8	16GB	â‚¹5,400	Good	Medium

Winner: Hetzner CPX41 âœ…

- âœ… **Current provider** - Easy migration
- âœ… **Best price-performance** for European audience
- âœ… **Excellent network** (important for streaming)
- âœ… **Proven reliability**
- âœ… **Simple upgrade** from your current plan

ðŸš€ GPU Cloud Options (Hardware Acceleration)

GPU-Enabled Instances for Maximum Performance

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Provider Options:
â”œâ”€â”€ Hetzner Cloud GPU: Not available yet
â”œâ”€â”€ Google Cloud (Mumbai): â‚¹25,000-40,000/month
â”œâ”€â”€ AWS (Mumbai): â‚¹30,000-50,000/month
â”œâ”€â”€ Vultr GPU: â‚¹20,000-35,000/month
â””â”€â”€ Lambda Labs: â‚¹15,000-25,000/month

Why GPU matters:
- CPU-only: 8 cores for 5 streams
- GPU-accelerated: 4 cores + GPU for 10+ streams
- Power efficiency: 60% less CPU usage
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GPU Cloud Reality Check: - ðŸ’° **Too expensive** for Indian startups (â‚¹20,000-50,000/month) - ðŸŽ¯ **Better approach**: Optimize software encoding on 8-core CPU

âš¡ Immediate Upgrade Strategy

Phase 1: Quick Fix (This Week)

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Current: Hetzner 2-core (â‚¹5,000/month)
Upgrade to: Hetzner CPX41 8-core (â‚¹9,600/month)
Additional cost: â‚¹4,600/month
Performance gain: 10x improvement (0.5 â†’ 5+ streams)
```

Migration Steps

1. **Create snapshot** of current server
2. **Resize to CPX41** (8 cores, 16GB)
3. **Use optimized transcoding script** (already created)
4. **Test with multiple streams**
5. **Monitor performance**

Cost-Benefit Analysis

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Monthly Investment: â‚¹4,600 additional
Revenue capacity: 5x increase
Break-even: 1 month with 1 additional client
Annual savings vs local server: â‚¹3,60,000+
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ðŸ”§ Optimized Cloud Configuration

Software Optimizations for Cloud CPU

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Transcoding Settings:
â”œâ”€ Preset: ultrafast (60% faster than veryfast)
â”œâ”€ Quality levels: 2 instead of 3 (720p + 360p)
â”œâ”€ Thread optimization: Use all 8 cores efficiently
â”œâ”€ Memory buffering: Reduce disk I/O
â””â”€ Network optimization: Reduce latency

Expected performance:
- 8-core cloud instance: 5-6 concurrent streams
- With optimizations: 6-8 concurrent streams
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Alternative: Multi-Server Architecture

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Setup:
â”œâ”€ Main server (CPX21): â‚¹4,800 - Handle 2-3 streams
â”œâ”€ Secondary server (CPX21): â‚¹4,800 - Handle 2-3 streams
â””â”€ Load balancer: Distribute streams

Total cost: â‚¹9,600/month
Benefits:
- Redundancy (if one fails, other continues)
- Geographic distribution possible
- Easier to scale up/down
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ðŸŒ Regional Performance Considerations

Server Location Impact

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For Indian Streamers:
â”œâ”€ Singapore/Frankfurt: 150-200ms latency
â”œâ”€ Mumbai (limited providers): 20-50ms latency
â”œâ”€ Bangalore edge: 10-30ms latency
â””â”€ International audience: Europe servers better

Recommendation: Keep Hetzner (European audience focus)
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Bandwidth Requirements (5 Streams)

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Upload bandwidth needed:
â”œâ”€ 720p stream: 3 Mbps upload
â”œâ”€ 5 concurrent: 15 Mbps minimum
â”œâ”€ Safety margin: 25 Mbps recommended
â””â”€ Cloud instance: Unlimited bandwidth âœ…

Your current server: Unlimited bandwidth (good!)
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ðŸŽ¯ Final Cloud Recommendation

Best Immediate Solution

Upgrade current Hetzner to CPX41 (8 cores, 16GB)

Why this is perfect: - âœ… **Minimal disruption**: Same provider, easy resize - âœ… **Cost-effective**: Only â‚¬4,600/month additional
- âœ… **Proven performance**: 8 cores handle 5+ streams - âœ… **European network**: Better for international streaming - âœ… **No migration headaches**: Upgrade in 10 minutes

Performance expectation: - **Current**: 0.5 streams (crashes) - **After upgrade**: 5+ streams stable - **Growth room**: Can handle 6-8 streams with optimization

Action Plan

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This Week:
â”œâ”€â”€ Backup current server
â”œâ”€â”€ Resize to CPX41 via Hetzner console
â”œâ”€â”€ Deploy optimized transcoding script
â”œâ”€â”€ Test with multiple streams
â””â”€â”€ Monitor performance metrics

Next Month:
â”œâ”€â”€ Onboard additional streaming clients
â”œâ”€â”€ Fine-tune for maximum performance
â”œâ”€â”€ Consider CDN for global reach
â””â”€â”€ Plan for further scaling
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Total Monthly Cost: â‚¬9,600 (very reasonable for 5+ stream capability) **ROI**: Immediate - can serve 5x more clients **Risk**: Very low - same provider, proven technology

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Bottom Line: Spend â‚¬4,600 more per month, get 10x performance improvement! ðŸš€