🌐 CLOUD INSTANCE RECOMMENDER

User Guide

📋 Table of Contents

📖 Introduction

Welcome to the **Cloud Instance Recommender**, a comprehensive web-based tool designed to help organizations optimize their cloud infrastructure costs across AWS, Azure, and Google Cloud Platform (GCP). This platform provides intelligent instance sizing recommendations based on your current usage patterns and utilization data.

🎯 Key Benefits

BENEFIT	DESCRIPTION
💰 COST OPTIMIZATION	Find cheaper alternatives that meet your performance requirements
⚡ PERFORMANCE MATCHING	Ensure recommended instances meet or exceed current specifications
🔄 SMART SCALING	N/2, N, N+1 optimization strategy based on actual utilization
☁ MULTI-CLOUD SUPPORT	Compare recommendations across AWS, Azure, and GCP
📊 DATA-DRIVEN	Make informed decisions based on real usage data

🌐 Supported Cloud Providers

PROVIDER	INSTANCE TYPES	SPECIAL FEATURES
🔶 AWS	EC2 Instances	Graviton (ARM) support, Nitro instances, comprehensive family filtering
🔷 AZURE	Virtual Machines	ARM-based instances, VM series categorization, pricing tiers
🔴 GCP	Compute Engine	T2A ARM instances, machine type categories, sustained use discounts

🚀 Getting Started

📋 System Requirements

REQUIREMENT	SPECIFICATION
BROWSER	Modern web browser (Chrome, Firefox, Safari, Edge)
INTERNET	Active internet connection for initial load
FILE SIZE	CSV files up to 10MB
DATA	VM inventory with CPU, memory, and optional utilization data

🌐 Accessing the Platform

1. **Visit the Platform**: Navigate to the Cloud Instance Recommender URL

2. **Choose Your Path**: Select from the homepage options:

   - 🔶 **AWS**: For Amazon Web Services recommendations

   - 🔷 **Azure**: For Microsoft Azure recommendations

   - 🔴 **GCP**: For Google Cloud Platform recommendations

   - ⬭ **Multi-Cloud**: For cross-provider comparison

🗇 Platform Overview

The interface is organized into distinct sections:

- 📄 **Sample CSV Template**: Download and customize data templates

- 📁 **Upload CSV File**: Import your VM inventory data

- ⚙️ **Recommendation Type**: Choose optimization strategy

- 🔧 **Advanced Filtering**: Customize instance selection criteria

- 🚀 **Generate Recommendations**: Process your data

- 📊 **Usage Statistics**: Track your optimization activities

📊 Data Preparation

📋 Required Data Format

Your CSV file must include these essential columns:

COLUMN NAME	DESCRIPTION	EXAMPLE	REQUIRED
VM NAME	Virtual machine identifier	web-server-01	✅ Yes
CPU COUNT	Number of vCPUs	4	✅ Yes
MEMORY (GB)	RAM in gigabytes	16	✅ Yes
[PROVIDER] REGION	Target cloud region	us-east-1	✅ Yes

🗾 Optional Utilization Data

For optimized recommendations, include:

COLUMN NAME	DESCRIPTION	EXAMPLE	BENEFIT
CPU UTILIZATION	Average CPU usage %	45	Enables smart scaling
MEMORY UTILIZATION	Average memory usage %	60	Right-sizing accuracy

📄 Sample CSV Structure

VM Name,CPU Count,Memory (GB),CPU Utilization,Memory Utilization,AWS Region,Azure Region,GCP Region
web-server-01,4,16,45,60,us-east-1,East US,us-central1-a
db-server-02,8,32,70,80,us-west-2,West US 2,us-west1-b
app-server-03,2,8,35,45,eu-west-1,North Europe,europe-west1-c
cache-server-04,2,4,25,30,us-east-1,East US,us-central1-a
api-server-05,4,8,65,55,us-west-1,West US,us-west1-b

📊 Data Collection Tips

🔶 **AWS Data Sources:**

- CloudWatch metrics for utilization

- EC2 console for instance specifications

- Cost Explorer for current costs

🔷 **Azure Data Sources:**

- Azure Monitor for performance metrics

- Azure portal for VM specifications

- Cost Management for billing data

🔴 **GCP Data Sources:**

- Cloud Monitoring for utilization

- Compute Engine console for instance details

- Cloud Billing for cost analysis

✴ Platform Navigation

🏠 Homepage Navigation

The landing page provides four main paths:

1. 🔶 **AWS (Amazon Web Services)**

   - EC2 instance optimization

   - Cost reduction analysis

   - Performance benchmarking

   - Reserved instance planning

2. 🔷 **Azure (Microsoft Azure)**

   - VM size optimization

   - Azure cost management

   - Resource utilization analysis

   - Hybrid cloud support

3. 🔴 **GCP (Google Cloud Platform)**

   - Compute Engine optimization

   - Machine learning insights

   - Sustainable computing options

   - Custom machine types

4. ⚪ **Multi-Cloud Strategy**

   - Cross-cloud comparison

   - Unified cost analysis

   - Migration planning

   - Vendor lock-in prevention

🔲 Interface Sections

Each provider page contains consistent sections:

1. 📄 **Sample CSV Template**

   - View standard CSV format

   - Download customized templates

   - Understand required columns

2. 📁 **File Upload**

- Drag-and-drop functionality

- File validation and error checking

- Data preview and statistics

3. ⚙️ **Recommendation Type Selection**

- Like-to-Like recommendations

- Optimized recommendations

- Combined approach

4. 🔧 **Advanced Filtering (Optional)**

- Current generation instances

- Processor type preferences

- Instance family restrictions

- Exclude specific types

5. 🚀 **Generation Controls**

- Progress tracking

- Download options

- Usage statistics

📋 Step-by-Step Usage Guide

Step 1: 🌐 Choose Your Cloud Provider

1. **Single Provider**: Select AWS, Azure, or GCP for focused recommendations

2. **Multi-Cloud**: Choose Multi-Cloud for cross-provider comparison

Step 2: 📥 Download and Prepare Template

1. **Download Template**: Click " 📥 Download Sample CSV"

2. **Customize Data**: Replace sample data with your VM inventory

3. **Validate Format**: Ensure all required columns are present

4. **Save File**: Save as CSV format

Step 3: 📋 Upload Your Data

1. **File Upload**:

   - Drag and drop your CSV file, or

   - Click to browse and select file

2. **Validation**: The system will automatically:

   - Validate file format

   - Check required columns

   - Display data preview

   - Show quality score

Step 4: 🎯 Select Recommendation Type

Choose your optimization strategy:

🔄 Like-to-Like Recommendation

- **Purpose**: Find cheapest instances meeting current specifications

- **Method**: Match or exceed current CPU and memory

- **Best For**: Conservative migrations, guaranteed performance

- **Output**: Lowest cost options with same or better specs

⚡ Optimized Recommendation

- **Purpose**: Right-size based on actual utilization

- **Method**: N/2, N, N+1 strategy using utilization data

- **Best For**: Cost optimization, performance tuning

- **Requirements**: CPU and memory utilization data

🔄 ➕ ⚡ Both Recommendations

- **Purpose**: Compare conservative vs. optimized approaches

- **Method**: Generate both recommendation types

- **Best For**: Comprehensive analysis, decision comparison

Step 5: ⚙️ Configure Optimization Settings

(For Optimized Recommendations)

🔢 Optimization Mode

- ☑ **CPU-Based**: Scale CPU based on utilization
- ☑ **Memory-Based**: Scale memory based on utilization

💻 **CPU Utilization Ranges**

- **Downsizing (N-1)**: 0% to 50% - Reduce CPU by half
- **Keep Same (N)**: 50% to 80% - Maintain current CPU
- **Upsizing (N+1)**: 80% to 100% - Add one CPU

🧠 **Memory Utilization Ranges**

- **Downsizing (N-1)**: 0% to 50% - Reduce memory by half
- **Keep Same (N)**: 50% to 80% - Maintain current memory
- **Upsizing (N+1)**: 80% to 100% - Add memory

Step 6: 🔧 **Advanced Filtering (Optional)**

✨ **Current Generation Filter**

- ✅ **Enabled**: Latest generation instances only
- ❌ **Disabled**: Include previous generation instances
- **Benefit**: Better performance and efficiency

🏷️ **Instance Family Restrictions**

Configure by provider:

🔶 **AWS Options:**

- General purpose (t3, m5, m6)
- Compute optimized (c5, c6)
- Memory optimized (r5, r6)
- Storage optimized (i3, d3)

🔷 **Azure Options:**

- B-series (Burstable)
- D-series (General purpose)
- E-series (Memory optimized)
- F-series (Compute optimized)

🔴 GCP Options:

- E2 (Cost-optimized)

- N2 (General purpose)

- C2 (Compute optimized)

- M1/M2 (Memory optimized)

🔧 **Processor Preferences**

- **Intel**: Traditional x86-64 processors

- **AMD**: EPYC processors with high core counts

- **ARM/Graviton**: Cost-effective ARM-based processors

❌ **Exclusion Options**

Exclude specific instance types:

- ARM-based instances

- GPU instances

- Previous generation

- Specialized instances

Step 7: 🚀 **Generate Recommendations**

1. **Click Generate**: Press "🔄 Generate Recommendations"

2. **Monitor Progress**: Watch the processing status bar

3. **Review Statistics**: Check processing summary

4. **Download Results**: Click "📥 Download Results CSV"

🎯 Understanding Recommendations

🔍 Recommendation Logic

🔄 Like-to-Like Strategy

For each VM:

1. Find instances with CPU ≥ current CPU

2. Find instances with Memory ≥ current Memory

3. Apply selected filters

4. Return cheapest option

⚡ **N/2, N, N+1 Optimization Strategy**

For each VM:

1. **Analyze CPU utilization:**

   o If ≤ 50%: Target = current CPU ÷ 2

   o If 50-80%: Target = current CPU

   o If > 80%: Target = current CPU + 1

2. **Analyze Memory utilization:**

   o If ≤ 50%: Target = current Memory ÷ 2

   o If 50-80%: Target = current Memory

   o If > 80%: Target = current Memory + additional

3. **Find best instance matching targets**

📊 Output Columns Explained

📝 Original Data

- **VM Name**: Your original VM identifier

- **CPU Count**: Current vCPU count

- **Memory (GB)**: Current RAM in GB

- **CPU/Memory Utilization**: Usage percentages

🎯 Recommendation Columns (per provider)

- **Instance Type**: Recommended instance (e.g., m5.large)

- **Price**: Hourly cost in USD

- **vCPUs**: Number of virtual CPUs

- **Memory**: RAM in GB

📄 Example Output

VM Name,CPU Count,Memory (GB),CPU Utilization,Memory Utilization,

AWS Like-to-Like Instance,AWS Like-to-Like Price,AWS Like-to-Like vCPUs,AWS Like-to-Like Memory,

AWS Optimized Instance,AWS Optimized Price,AWS Optimized vCPUs,AWS Optimized Memory

web-server-01,4,16,45,60,m5.large,0.096,2,8,t3.large,0.083,2,8

💰 Cost Savings Analysis

🗃️ Calculating Savings

- **Monthly Savings** = (Current Cost - Recommended Cost) × 730 hours

- **Annual Savings** = Monthly Savings × 12

- **Savings Percentage** = (Savings ÷ Current Cost) × 100

🔢 ROI Estimation

- **Immediate**: Hourly cost reduction

- **Monthly**: Multiply by ~730 hours

- **Annual**: Multiply monthly by 12

- **3-Year TCO**: Consider reserved instance discounts

⚙️ Advanced Features

🔍 Data Validation Engine

📊 Quality Scoring (0-100%)

The platform automatically scores your data quality:

Score Range Quality Level Description

90-100%	🟢 Excellent	Complete data with minimal issues
70-89%	🟡 Good	Some missing values, minor issues
50-69%	🟠 Fair	Multiple data quality issues
Below 50%	🔴 Poor	Significant data problems

✅ Validation Checks

- ✅ Required columns present

- ✅ Numeric data format validation

- ✅ Region name validation

- ✅ Duplicate detection

- ✅ Empty value identification

🖌 Data Cleaning

The system automatically:

- Removes special characters from numbers

- Normalizes region names

- Handles percentage symbols

- Validates data ranges

🔧 Advanced Filtering Options

◇ AWS-Specific Filters

🤖 Graviton Support

- Include AWS Graviton (ARM) instances

- Up to 40% better price-performance

- Compatible with most workloads

⚡ Nitro System

- Latest generation networking

- Enhanced security features

- Better performance

🏷 Instance Families

- **t-family**: Burstable performance

- **m-family**: General purpose

- **c-family**: Compute optimized

- **r-family**: Memory optimized

◇ Azure-Specific Filters

🖥 VM Series

- **Dv3/Dsv3**: General purpose with SSD

- **Ev3/Esv3**: Memory optimized

- **Fv2/Fsv2**: Compute optimized

- **B-series**: Burstable performance

🤖 ARM Support

- Dps and Eps series

- Cost-effective for cloud-native apps

- Up to 20% cost savings

🌑 GCP-Specific Filters

🖥️ Machine Types

- **standard**: Balanced CPU and memory

- **highmem**: High memory-to-CPU ratio

- **highcpu**: High CPU-to-memory ratio

- **shared-core**: Cost-effective micro instances

🔧 Processor Platforms

- Intel Skylake/Ice Lake

- AMD Rome/Milan

- ARM Ampere Altra

📊 Statistical Analysis

🔢 Usage Tracking

- Total tool uses

- VMs processed

- Recommendations generated

- Cost savings achieved

⚡ Performance Metrics

- Processing speed

- Data quality trends

- Filter usage patterns

- Provider preferences

☁ Multi-Cloud Comparison

🎯 Benefits of Multi-Cloud Analysis

1. 💰 **Cost Optimization**: Compare prices across providers

2. 🔓 **Avoid Vendor Lock-in**: Maintain flexibility

3. ⚡ **Performance Comparison**: Find best fit per workload

4. 🚀 **Migration Planning**: Understand cross-provider options

📄 Multi-Cloud CSV Format

VM Name,CPU Count,Memory (GB),CPU Utilization,Memory Utilization,AWS Region,Azure Region,GCP Region

web-server-01,4,16,45,60,us-east-1,East US,us-central1-a

db-server-02,8,32,70,80,us-west-2,West US 2,us-west1-b

🔄 Cross-Provider Comparison

🗺 Instance Type Mapping

Workload Type	AWS	Azure	GCP
General Purpose	m5.large	Standard_D2s_v3	n2-standard-2
Compute Optimized	c5.large	Standard_F2s_v2	c2-standard-4
Memory Optimized	r5.large	Standard_E2s_v3	n2-highmem-2
Cost Optimized	t3.large	Standard_B2s	e2-standard-2

🌍 Regional Equivalents

Geographic Area	AWS	Azure	GCP
US East	us-east-1	East US	us-east1
US West	us-west-2	West US 2	us-west1
Europe	eu-west-1	North Europe	europe-west1
Asia Pacific	ap-southeast-1	Southeast Asia	asia-southeast1

📊 Multi-Cloud Output Analysis

🔄 Side-by-Side Comparison

VM Name,Current Config,

AWS Like-to-Like,AWS Price,

Azure Like-to-Like,Azure Price,

GCP Like-to-Like,GCP Price,

Best Option,Savings

web-server-01,4vCPU/16GB,m5.large,$0.096,Standard_D2s_v3,$0.096,n2-standard-2,$0.097,AWS/Azure,$0.001

🎯 Decision Matrix

Consider these factors:

- 💰 **Cost**: Hourly pricing differences
- ⚡ **Performance**: CPU/memory specifications
- 🔧 **Features**: Provider-specific capabilities
- 🔗 **Integration**: Existing infrastructure
- ⚒️ **Support**: Technical support quality

📈 Output Analysis

🎯 Understanding Results

📊 Recommendation Status

- ✅ **Success**: Valid recommendation found
- ❌ **No Match**: No instances meet criteria
- ⚠️ **Error**: Processing issue occurred
- 📝 **Missing Data**: Insufficient input data

💰 Cost Analysis

⚡ Immediate Savings

- **Hourly Savings** = Current Hourly Cost - Recommended Hourly Cost
- **Daily Savings** = Hourly Savings × 24

- **Monthly Savings** = Hourly Savings × 730

📊 TCO (Total Cost of Ownership)

- **3-Year On-Demand** = Monthly Cost × 36

- **3-Year Reserved** = Monthly Cost × 36 × 0.6 (40% discount)

- **Annual Savings** = (Current Annual - Recommended Annual)

⚡ Performance Impact

- **CPU Change**: vCPU difference (positive = upgrade)

- **Memory Change**: RAM difference (positive = upgrade)

- **Performance Score**: Overall performance comparison

☑ Validation Steps

🔍 Before Implementation

1. 🔧 **Verify Compatibility**: Ensure workload compatibility

2. ⚡ **Test Performance**: Run benchmarks if possible

3. 🔗 **Check Dependencies**: Validate software requirements

4. 📋 **Plan Migration**: Develop rollback strategy

💰 Cost Validation

1. 💲 **Pricing Verification**: Confirm current provider pricing

2. 🏷 **Reserved Instance**: Consider long-term discounts

3. ➕ **Additional Costs**: Factor in data transfer, storage

4. 👁 **Hidden Fees**: Account for premium features

📤 Export Options

📄 CSV Export Features

- Complete original data preserved

- All recommendations included

- Pricing information current

- Ready for further analysis

📊 Excel Analysis

The CSV can be opened in Excel for:

- Pivot table analysis

- Chart creation

- Financial modeling

- Presentation preparation

🔧 Troubleshooting

⚠️ Common Issues and Solutions

🗂️ File Upload Problems

Problem: "CSV parsing failed"

Possible Causes:

- Special characters in data

- Incorrect file encoding

- Malformed CSV structure

Solutions:

1. Save CSV in UTF-8 encoding

2. Remove special characters

3. Check for unescaped quotes

4. Validate CSV structure

Problem: "File too large"

Solutions:

1. Split large files into smaller chunks

2. Remove unnecessary columns

3. Filter to essential VMs only

4. Use CSV compression tools

📊 Data Validation Issues

Problem: "Missing required columns"

Required Columns:

- VM Name

- CPU Count

- Memory (GB)

- [Provider] Region

Solution:

1. Check column names exactly match

2. Ensure no extra spaces

3. Verify case sensitivity

4. Download fresh template

Problem: "Invalid region names"

Common Issues:

- Incorrect region codes

- Mixed provider regions

- Typos in region names

Solutions:

1. Use standard region codes

2. Check provider documentation

3. Download sample template

4. Validate region availability

⚙ Processing Issues

Problem: "No recommendations found"

Possible Causes:

- Too restrictive filters

- Invalid region data

- Incompatible requirements

Solutions:

1. Relax filtering criteria

2. Check current generation filter

3. Verify region availability

4. Review processor restrictions

Problem: "Processing timeout"

Solutions:

1. Reduce file size

2. Simplify filtering options

3. Refresh browser

4. Try smaller batches

🌐 Browser Compatibility

Supported Browsers:

- ✅ Chrome 80+

- ✅ Firefox 75+

- ✅ Safari 13+

- ✅ Edge 80+

Browser Settings:

- JavaScript must be enabled

- Pop-up blocker may interfere with downloads

- Cookies not required

- Local storage used for statistics

⚡ Performance Optimization

Large File Handling:

For files with 1000+ VMs:

1. 📁 **Split Files**: Process in batches of 500-1000

2. 🔧 **Simplify Filters**: Use fewer filter options

3. 🔋 **Close Tabs**: Free up browser memory

4. 🔄 **Refresh Browser**: Clear temporary data

Memory Management:
- Clear browser cache regularly

- Close other applications

- Use incognito/private mode.

- Restart browser if needed.

✦ Best Practices

📊 Data Collection Best Practices

🗓 Utilization Data
- ⏱ **Duration**: Collect 30-90 days of data.

- 📊 **Peak Analysis**: Include peak usage periods

- 🔄 **Seasonal Patterns**: Account for business cycles

- 📋 **Multiple Metrics**: CPU, memory, disk, network

🎯 Data Quality
- 📊 **Completeness**: Aim for 95%+ data completeness

- ✅ **Accuracy**: Validate against actual configurations

- 🔄 **Consistency**: Use standardized naming conventions

- ⏰ **Timeliness**: Use recent performance data

🚀 Recommendation Implementation

🎯 Staged Approach
1. 🔧 **Development First**: Test in dev environments

2. 📋 **Non-Critical Systems**: Start with less critical workloads

3. 📈 **Gradual Rollout**: Implement in phases

4. 📊 **Monitor Performance**: Track metrics closely

🛡 Risk Mitigation

- 🔙 **Backup Plans**: Always have rollback procedures
- 🧪 **Testing**: Comprehensive performance testing
- 📊 **Monitoring**: Enhanced monitoring during transition
- 🛠 **Support**: Ensure technical support availability

💰 Cost Optimization Strategy

🧮 Long-term Planning

1. 🏷 **Reserved Instances**: Plan for 1-3 year commitments
2. ⚡ **Spot Instances**: Use for fault-tolerant workloads
3. 🔄 **Auto-scaling**: Implement dynamic scaling
4. 📊 **Regular Reviews**: Monthly optimization reviews

📊 Monitoring and Alerting

- Set up cost monitoring alerts
- Track utilization trends
- Monitor performance degradation
- Review recommendations quarterly

☁ Multi-Cloud Strategy

🎯 Provider Selection Criteria

- 💰 **Cost**: Total cost of ownership
- ⚡ **Performance**: Application requirements
- 🌍 **Geographic**: Data residency requirements
- 🔗 **Integration**: Existing tool compatibility

🚀 Migration Planning

1. 📊 **Assessment**: Current state analysis
2. 📋 **Strategy**: Multi-cloud or hybrid approach
3. ⚙ **Execution**: Phased migration plan
4. 🔄 **Optimization**: Continuous improvement

❓ FAQ

✳️ General Questions

Q: Is my data secure? A: Yes, all processing happens in your browser. No data is sent to external servers.

Q: Which file formats are supported? A: CSV files up to 10MB. Excel files should be saved as CSV first.

Q: How accurate are the cost estimates? A: Pricing is based on current public pricing. Actual costs may vary with discounts, reserved instances, and enterprise agreements.

Q: Can I use this for multiple cloud providers? A: Yes, use the Multi-Cloud option to compare recommendations across AWS, Azure, and GCP.

🔧 Technical Questions

Q: What browsers are supported? A: Modern browsers including Chrome, Firefox, Safari, and Edge (version 80+).

Q: Why are some instances not recommended? A: This could be due to filtering criteria, regional availability, or instance limitations.

Q: How often is pricing data updated? A: The tool uses current market pricing, but we recommend verifying with your cloud provider for the most accurate rates.

Q: Can I customize the optimization thresholds? A: Yes, you can adjust CPU and memory utilization thresholds in the optimization settings.

📊 Data Questions

Q: What if I do not have utilization data? A: You can still use Like-to-Like recommendations which only require CPU and memory specifications.

Q: How do I collect utilization data? A: Use CloudWatch (AWS), Azure Monitor (Azure), or Cloud Monitoring (GCP) to gather performance metrics.

Q: What regions are supported? A: All major regions for AWS, Azure, and GCP are supported. Check the sample templates for exact region names.

Q: Can I include custom instance types? A: The tool focuses on standard instance types. Custom configurations may not be included in recommendations.

💼 Business Questions

Q: **What is the ROI of using this tool?** A: Organizations typically see 15-40% cost reduction through rightsizing and cloud optimization.

Q: **How often should I run optimization?** A: Monthly for dynamic workloads, quarterly for stable workloads, or after significant usage pattern changes.

Q: **Can this help with cloud migration planning?** A: Yes, especially the Multi-Cloud feature which helps compare options across providers.

Q: **Is there support for enterprise features?** A: The current version focuses on instance optimization. Contact for enterprise requirements.

⚒️ Support and Resources
🆘 Getting Help

1. 💡 **Built-in Guidance**: Hover over? icons for tooltips

2. ⚠️ **Error Messages**: Read specific error guidance

3. 📄 **Sample Templates**: Use provided CSV examples

4. 📖 **This Guide**: Reference this comprehensive documentation

📚 Additional Resources

- 📖 **Cloud Provider Documentation**: AWS, Azure, and GCP official docs

- 🗂️ **Pricing Calculators**: Provider-specific cost calculators

- 📊 **Performance Monitoring**: CloudWatch, Azure Monitor, Cloud Monitoring

- 🚀 **Migration Tools**: Provider-specific migration services

✨ Best Practice Resources

- 🏆 **AWS Well-Architected Framework**: Cost optimization pillar

- 🔷 **Azure Architecture Center**: Cost management patterns

- 🔴 **GCP Architecture Framework**: Cost optimization principles

- 📊 **Industry Reports**: Cloud cost optimization studies

🎯 Conclusion

The Cloud Instance Recommender is a powerful tool for optimizing cloud infrastructure costs across multiple providers. By following this guide, you can:

- ✅ Prepare accurate data for analysis

- ✅ Generate meaningful recommendations

- ✅ Compare options across cloud providers

- ✅ Implement cost-effective solutions

- ✅ Monitor and optimize continuously

Remember that cloud optimization is an ongoing process. Regular reviews and adjustments ensure you maintain optimal cost-performance balance as your workloads evolve.

Happy Optimizing! 🚀

This guide covers all aspects of the Cloud Instance Recommender platform. For specific technical questions or feature requests, please refer to the platform's support channels.

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