

Cloud Engineer

FF09 IT infrastructure, operations and security · ISCO-08 2522 · CBS 0812 System administrators and network specialists · seniority medior · Also known as: Cloud Infrastructure Engineer, Cloud Operations Engineer

Builds and manages infrastructure on cloud platforms, captures it as code and safeguards availability, security and cost control.

The cloud engineer sets up environments with a cloud provider and manages them largely through configuration and scripts rather than by hand. Unlike the system administrator, the work is therefore also software development, and unlike the cloud architect it makes the chosen setup actually work. Selection asks for platform certificates, while the differentiator is cost awareness and permission management: a technically correct environment can still create problems through uncontrolled spend or overly broad access.

Key figures for this profile

25 skills · 4 competencies to measure · 6 knockout skills · centre of gravity: Digital, data and AI 72%, Cognitive ability and problem solving 9%, Self-management, drive and resilience 8%

1 Competencies to measure

These are the behavioural and ability constructs in this profile. Each one shows which hrmforce questionnaire measures it.

Competencies to measure	Target level	hrmforce instrument	Assessment method	Behavioural anchor at target level
Accuracy and attention to detail Competency (50-framework): Accuracy	 N4	Big Fifty, 360 Feedback	Personality questionnaire	Builds check moments into the own process, keeps track of errors and prevents repetition by adjusting the method.

Competencies to measure	Target level	hrmforce instrument	Assessment method	Behavioural anchor at target level
integrity and dependability Competency (50-framework): Integrity	 N4	Big Fifty (Integrity Scale), 360 Feedback, Structured interview	Personality questionnaire	Reports a possible conflict of interest on own initiative and asks for review before a decision is taken.
Discipline and keeping commitments Competency (50-framework): Discipline	 N4	Big Fifty, 15PF, 360 Feedback	Personality questionnaire	Commits only to what is feasible, tracks own commitments and informs those involved as soon as a deadline comes under pressure.
Stress tolerance Competency (50-framework): Stress resilience	 N4	Big Fifty, 15PF, Mental Resilience (4C)	Personality questionnaire	Keeps working in a structured way at peak load, keeps agreements with clients clear and flags early which results are at risk.

2 Full skill profile

Every skill in this profile, sorted by weight. The behavioural anchor under each skill belongs to the target level.

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Using cloud platforms Determines the organisation's cloud strategy and decides which workloads are placed where.	■■■■■ N5	5	yes	Knowledge test	Knowledge test (client-specific)
V	Problem analysis Splits a recurring complaint into possible causes, tests these with own data and names the most likely cause.	■■■■■ N4	5	yes	Assessment centre	Competency Check, Ability Scan
K	Basic networking knowledge Deduces from symptoms in which network layer a problem sits and supports that with own measurements.	■■■■■ N4	5	yes	Knowledge test	Knowledge test (client-specific)
V	System administration and monitoring Independently manages a system environment, sets monitoring thresholds and removes recurring causes of disruptions.	■■■■■ N4	5	yes	Work sample test	Knowledge test (client-specific), Work sample test
V	Incident management and troubleshooting Sets an investigation line for an unfamiliar disruption, restores the service and records cause and solution for reuse.	■■■■■ N4	5	yes	Work sample test	Work sample test, Knowledge test (client-specific)

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Access and identity management Designs roles and permissions for an application, carries out the periodic review and corrects excessive access.	 N4	5	yes	Work sample test	Knowledge test (client-specific), Work sample test
G	Accuracy and attention to detail Builds check moments into the own process, keeps track of errors and prevents repetition by adjusting the method.	 N4	4	no	Personality questionnaire	Big Fifty, 360 Feedback
G	integrity and dependability Reports a possible conflict of interest on own initiative and asks for review before a decision is taken.	 N4	4	no	Personality questionnaire	Big Fifty (Integrity Scale), 360 Feedback, Structured interview
G	Discipline and keeping commitments Commits only to what is feasible, tracks own commitments and informs those involved as soon as a deadline comes under pressure.	 N4	4	no	Personality questionnaire	Big Fifty, 15PF, 360 Feedback
G	Stress tolerance Keeps working in a structured way at peak load, keeps agreements with clients clear and flags early which results are at risk.	 N4	4	no	Personality questionnaire	Big Fifty, 15PF, Mental Resilience (4C)

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Information security in the work process Weighs security risks when setting new working agreements, adjusts measures and addresses colleagues on unsafe behaviour.	 N4	4	no	Knowledge test	Knowledge test (client-specific)
V	Programming Independently builds a function or module from the requirement, chooses suitable structures and keeps the code readable and tested.	 N4	4	no	Work sample test	Work sample test, Knowledge test (client-specific)
T	Version control and collaboration workflow Manages branches and merges independently, resolves conflicts and reviews colleagues' changes on substance.	 N4	4	no	Work sample test	Work sample test
V	Release management and deployment Draws up a rollout plan with a fallback option, aligns with stakeholders and verifies after rollout that the service works.	 N4	4	no	Work sample test	Knowledge test (client-specific), Work sample test
K	Information security awareness Explains to colleagues how threats work, judges doubtful cases independently and adapts own behaviour to new threats.	 N4	4	no	Knowledge test	Knowledge test (client-specific)

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Process automation Describes a process in steps, automates the repeatable steps and builds in checks on errors and exceptions.	 N4	4	no	Work sample test	Work sample test, Portfolio
V	Threat and risk analysis Independently performs a threat analysis on an application, prioritises risks and advises on measures with costs and effect.	 N3	4	no	Work sample test	Knowledge test (client-specific), Work sample test
V	Security incident response Independently limits damage during an incident, preserves evidence and delivers a traceable timeline of events.	 N3	4	no	Simulation	Knowledge test (client-specific), Work sample test
V	Learning from mistakes and incidents Analyses own errors and those of the team, discusses the cause openly in the work meeting and adjusts the agreements.	 N3	3	no	Situational Judgement Test	360 Feedback, Competency Check
V	Professional currency and specialist literature Tracks sources and guidelines structurally, weighs their quality and adapts the own working method to new insights.	 N3	3	no	Portfolio or evidence	Portfolio, Knowledge test (client-specific)
V	API integration Independently builds an interface between two systems, handles errors and documents the data exchange for support staff.	 N3	3	no	Work sample test	Work sample test

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Writing technical documentation Writes complete documentation for a system or process, tests it with an unfamiliar reader and maintains versions.	 N3	3	no	Work sample test	Work sample test, Portfolio
V	Functional and application management Independently manages an application, prioritises change requests with users and tests new versions before they go live.	 N3	3	no	Work sample test	Knowledge test (client-specific), Work sample test
V	Data classification and retention Determines classification and retention period for an information flow and checks whether clean up happens as planned.	 N3	2	no	Knowledge test	Knowledge test (client-specific), Work sample test
V	IT supplier and contract management Checks invoices and delivered services against the contract and reports deviations to the contract manager.	 N2	1	no	Structured interview	Structured interview, Portfolio

3 Levels per seniority

The same profile with the job family seniority adjustment applied. Target levels are clamped to 1 to 5.

Skill	medior	senior
Using cloud platforms	N5	N5
Problem analysis	N4	N5
Basic networking knowledge	N4	N5
System administration and monitoring	N4	N5
Incident management and troubleshooting	N4	N5
Access and identity management	N4	N5
Accuracy and attention to detail	N4	N5
integrity and dependability	N4	N5
Discipline and keeping commitments	N4	N5
Stress tolerance	N4	N5
Information security in the work process	N4	N5
Programming	N4	N5
Version control and collaboration workflow	N4	N5
Release management and deployment	N4	N4
Information security awareness	N4	N5
Process automation	N4	N4
Threat and risk analysis	N3	N4
Security incident response	N3	N4
Learning from mistakes and incidents	N3	N4
Professional currency and specialist literature	N3	N4
API integration	N3	N4
Writing technical documentation	N3	N4
Functional and application management	N3	N4

Skill	medior	senior
Data classification and retention	N3	N4
IT supplier and contract management	N2	N3

4 The proficiency scale

Level	Label	Autonomy	Complexity	Scope	Depth of knowledge
N1	Guided	works under supervision and follows instruction	routine, one variable at a time	own task	basic understanding of terminology
N2	Applying	works independently within set frameworks	familiar situations with limited variation	own role	working knowledge, applies standard approach
N3	Proficient	sets own approach and seeks input proactively	several variables, some ambiguity	own team or process	thorough knowledge, weighs alternatives
N4	Advanced	directs others and decides on the approach	complex, with conflicting interests	several teams or a department	in-depth knowledge, advises others
N5	Leading	sets the standard and the policy	strategic, under high uncertainty	organisation, value chain or profession	authority, advances the profession

5 Behavioural anchors per skill

Anchors sit at N1, N3 and N5. N2 and N4 are deliberately not anchored: raters interpolate between them, following the O*NET convention.

Skill	N1	N3	N5
Using cloud platforms Sets up and manages services in a cloud environment, arranges permissions and costs and chooses between available service types based on requirements.	Uses existing cloud services as instructed and reports unusual behaviour or unexpected costs to the administrator.	Independently configures cloud services for an application, arranges permissions and backups and keeps costs and usage in view.	Determines the organisation's cloud strategy and decides which workloads are placed where.
Problem analysis Breaks a problem into parts, separates causes from effects and states which information is needed to move forward.	States precisely what deviates in a malfunction and which data are missing, and puts this to the supervisor.	Splits a recurring complaint into possible causes, tests these with own data and names the most likely cause.	Traces persistent organisational problems back to a few root causes and sets the analysis method that other teams will use.

Skill	N1	N3	N5
Basic networking knowledge Knows how networks work at a high level such as addressing, routing, ports and name resolution and states where a connection problem may arise.	Explains which parts make up a connection and performs a provided check such as a connectivity test.	Deduces from symptoms in which network layer a problem sits and supports that with own measurements.	Disseminates networking knowledge in the organisation, sets design principles and reviews network designs from suppliers.
System administration and monitoring Keeps systems running by managing settings, updates and permissions, sets up monitoring and acts on signals before users are affected.	Performs scheduled maintenance tasks and updates according to the runbook and reports deviations in monitoring signals.	Independently manages a system environment, sets monitoring thresholds and removes recurring causes of disruptions.	Sets the organisation's administration and monitoring standards and decides on the design of the system environment.
Incident management and troubleshooting Takes in disruptions, establishes the cause through targeted steps, restores the service and keeps reporters and stakeholders informed.	Logs a disruption completely, works through the standard steps and escalates as soon as own steps do not work.	Sets an investigation line for an unfamiliar disruption, restores the service and records cause and solution for reuse.	Designs the organisation's incident process, leads the response to major disruptions and accounts for it to management and clients.
Access and identity management Grants permissions based on role and necessity, periodically reviews who can access what and withdraws rights on change or departure.	Processes access requests according to the established role scheme and records every change.	Designs roles and permissions for an application, carries out the periodic review and corrects excessive access.	Sets the organisation's access policy and accounts for the control of permissions in audits.
Accuracy and attention to detail Works carefully, checks own work for errors and keeps to agreements about completeness and correctness of data.	Goes through the own work with a checklist and repairs errors found before the work is passed on.	Builds check moments into the own process, keeps track of errors and prevents repetition by adjusting the method.	Sets the standards for completeness and correctness, has samples checked and addresses teams on structural sloppiness.

Skill	N1	N3	N5
integrity and dependability Acting in line with applicable standards and agreements, also without supervision, and being transparent about own interests, mistakes and doubtful cases.	Keeps to agreements and rules of conduct made and reports an own mistake to the manager.	Reports a possible conflict of interest on own initiative and asks for review before a decision is taken.	Sets the organisation's integrity standards, enforces them also with influential parties and explains the resulting choices publicly.
Discipline and keeping commitments Sticks to agreements, procedures and commitments even without supervision, and reports in good time when a commitment turns out to be unachievable.	Arrives at the agreed time with the agreed work and reports any delay to the supervisor.	Commits only to what is feasible, tracks own commitments and informs those involved as soon as a deadline comes under pressure.	Anchors the standard for reliable follow through in working agreements and addresses anyone at any level who lets that standard slip.
Stress tolerance Keeps delivering work of the same quality under time pressure, opposition or unexpected turns and maintains a businesslike tone with others.	Keeps working on the current task as pressure rises and asks the supervisor which task can wait.	Keeps working in a structured way at peak load, keeps agreements with clients clear and flags early which results are at risk.	Keeps the organisation workable in crises, takes decisions under high uncertainty and sets the standard for composed action under pressure.
Information security in the work process Applies security measures in daily work such as safe sharing, classifying and storing information and flags risky working practices.	Follows the security rules for sharing and storing information and reports a suspected incident immediately.	Weights security risks when setting new working agreements, adjusts measures and addresses colleagues on unsafe behaviour.	Sets information security policy and monitors organisation wide that processes meet the requirements set.
Programming Writes, reads and improves working program code in at least one language, splits a problem into steps and tests own solution.	Adjusts existing code as directed, runs it and reports error messages that cannot be resolved alone.	Independently builds a function or module from the requirement, chooses suitable structures and keeps the code readable and tested.	Sets programming standards and language choices for the organisation and reviews others' code for quality and maintainability.

Skill	N1	N3	N5
Version control and collaboration workflow Works with a version control system, uses branches and merge requests and keeps the change history traceable for the team.	Commits changes with a clear description in the designated branch according to the team agreement.	Manages branches and merges independently, resolves conflicts and reviews colleagues' changes on substance.	Determines the way of working for version control and code review in the organisation and enforces it across teams.
Release management and deployment Plans and carries out the rollout of new versions, checks operation before and after and ensures a rollback stays possible.	Executes the steps of a rollout plan and reports immediately when a step does not give the expected result.	Draws up a rollout plan with a fallback option, aligns with stakeholders and verifies after rollout that the service works.	Sets the organisation's release policy, decides on rollout windows and structurally improves the lead time of changes.
Information security awareness Knows the most common threats such as phishing, ransomware and deception, recognises their signals and knows which action is then expected.	Recognises an obvious phishing message, does not click and reports the message through the designated channel.	Explains to colleagues how threats work, judges doubtful cases independently and adapts own behaviour to new threats.	Designs the organisation's awareness programme, measures its effect and adjusts the approach based on measured results.
Process automation Analyses a recurring work process, builds or commissions automation of its steps and checks that the outcome stays reliable.	Runs an existing automation and reports when the outcome differs from what was expected.	Describes a process in steps, automates the repeatable steps and builds in checks on errors and exceptions.	Determines the organisation's automation agenda and decides which processes are and are not automated.
Threat and risk analysis Maps threats, weaknesses and consequences for a system or process, weighs likelihood against impact and names appropriate measures.	Completes a risk inventory using a given list of threats and submits the outcome to the specialist.	Independently performs a threat analysis on an application, prioritises risks and advises on measures with costs and effect.	Determines the organisation's risk appetite and analysis method and accounts for the security risk picture to the board.

Skill	N1	N3	N5
Security incident response Acts on a security incident following the runbook by containing it, preserving evidence, recovering and informing the right parties in time.	Reports a suspected incident immediately, touches nothing and follows the coordinator's instructions.	Independently limits damage during an incident, preserves evidence and delivers a traceable timeline of events.	Leads the organisation wide response team, decides on external communication and improves the runbook after every exercise.
Learning from mistakes and incidents Investigates after an error or incident what happened, names the cause without shifting blame and changes the working method on that point.	Reports an own error to the supervisor at once and repeats the task following the corrected instruction.	Analyses own errors and those of the team, discusses the cause openly in the work meeting and adjusts the agreements.	Ensures incidents are reported safely across the organisation, has causes analysed structurally and works the lessons into policy and standards.
Professional currency and specialist literature Follows developments in the own profession through literature, guidelines and networks and works relevant new insights into own practice.	Reads the professional information received and names which part matters for the own work.	Tracks sources and guidelines structurally, weighs their quality and adapts the own working method to new insights.	Assesses the state of the field, weighs conflicting research and determines which guidelines the organisation will follow from now on.
API integration Connects systems through programming interfaces, reads their documentation, handles errors and limits and tests the interface end to end.	Executes a prepared interface call following documentation and reports recurring error codes to the developer.	Independently builds an interface between two systems, handles errors and documents the data exchange for support staff.	Sets the organisation's integration standards and interface policy and decides on exposure to external parties.
Writing technical documentation Writes manuals, support documentation and decision records that a reader without prior knowledge can follow step by step and that stay current.	Completes a documentation template with the steps of a task and has the text checked by a colleague.	Writes complete documentation for a system or process, tests it with an unfamiliar reader and maintains versions.	Sets the organisation's documentation standard and ensures documentation is part of every delivery.

Skill	N1	N3	N5
Functional and application management Keeps an application working and fitting for users by collecting needs, managing settings and coordinating changes with the supplier.	Handles user questions about an application as instructed and records requests in the designated register.	Independently manages an application, prioritises change requests with users and tests new versions before they go live.	Determines how functional management is organised and decides on the lifespan of applications.
Data classification and retention Classifies information by sensitivity and importance, links retention periods to it and ensures deletion and archiving actually happen.	Assigns a classification label according to the scheme and refers unclear cases to the administrator.	Determines classification and retention period for an information flow and checks whether clean up happens as planned.	Designs the organisation's classification and retention policy and accounts for it in audits and supervision.
IT supplier and contract management Manages agreements with IT suppliers on delivery, performance and cost, monitors compliance and addresses suppliers on deviations.	Checks invoices and delivered services against the contract and reports deviations to the contract manager.	Holds supplier meetings on performance and cost, records agreements and intervenes when agreements are not met.	Sets the organisation's supplier policy, concludes the main contracts and decides on termination or switching.

6 Assessment methods and validity

The validities are the corrected meta-analytic estimates from Sackett, Zhang, Berry and Lievens (2022) in the Journal of Applied Psychology, which replace the older Schmidt and Hunter (1998) figures. The spread matters as much as the mean: with a high SD, validity varies strongly by context.

Assessment method	rho	SD	What it is
Knowledge test	0.40	0.13	Test of declarative job knowledge, usually assembled per client.
Assessment centre	0.29	0.09	Multiple exercises, multiple assessors, dimension-wise scoring.
Work sample test	0.33	0.09	The candidate performs a representative work sample under standardised conditions.
Personality questionnaire	0.40	0.15	Self-report of behavioural preferences. At hrmforce the Big Fifty and the 15PF.
Simulation	-	-	Simulated work situation, usually digital, with standardised scoring.
Situational Judgement Test	0.12	0.11	Scenario with response options, scored on knowledge or behavioural tendency.
Portfolio or evidence	-	-	A collection of prior work or results, assessed against fixed criteria.
Structured interview	0.42	0.19	Behaviour-based interview with fixed questions and a rating scale per question.

7 Assessment instruments for this job

hrmforce instrument	Skills	What it measures
Knowledge test (client-specific)	14	Professional knowledge test, customized for each client
Work sample test	13	Representative work sample under standardized conditions
360 Feedback	4	Multiple assessments based on behavioral anchors
Portfolio	4	Evaluation of prior work against fixed criteria
Big Fifty	3	Personality questionnaire, 150 items, 25 factors
Competency Check	2	Behavioral-Level Competency Assessment
Structured interview	2	Behavioral interview with a fixed structure
15PF	2	Personality Profile, a shorter alternative to the Big Fifty

hrmforce instrument	Skills	What it measures
Ability Scan	1	Aptitude Test: Verbal, Numerical, and Abstract Reasoning Skills
Big Fifty (Integrity Scale)	1	
Mental Resilience (4C)	1	Mental Resilience According to the 4C Model

8 How to use this profile

1. Agree the profile with the hiring manager before the first candidate is measured. Weights shifted afterwards make the outcome indefensible.
2. Choose the assessment method per skill from the Assessment method column. Combine at most three methods per candidate.
3. Calibrate the assessors in a two-hour session using the anchors in chapter 5. Anchors without rater training deliver little.
4. Fill in the match calculator and discuss the gaps in the development conversation. Type A and type G are selection criteria, not one-quarter development goals.

Source: hrmforce Skills Framework 2.0, version 2.0.0, built 2026-09-08. Crosswalks to ESCO v1.2.1, O*NET 31.0, Lightcast Open Skills, SFIA 9, DigComp 3.0, EntreComp, LifeComp, GreenComp, Allit, WEF Future of Jobs 2025, ISCO-08 and the Dutch CBS occupational classification BRC 2014 edition 2025. This profile is a starting point, not a standard: align it with your own organisation before selecting on it.