Schedule 6

SYSTEM SUPPORT AND HOSTING SERVICES
SERVICE MANAGEMENT PLAN

Between
University College London

And
Catalyst IT Europe Limited

14 June 2021

CONTENTS

BACKGROUND

- This schedule relates to the Operational Services and is entered into pursuant to and on the terms of the Agreement for the Provision of Discovery, Implementation and Operational Services between University College London and Catalyst IT Europe Limited dated 23 May 2020 with reference UCL-PROC-001216

- Catalyst will provide support services for all the application and system Software and AWS cloud hosting services as detailed in this Schedule.

- Catalyst will provide services designed to ensure high availability, efficiency and security of the Software and the AWS Cloud services/Hardware on which they operate.

- The parties may vary or amend the services in this Service Management Plan at any time, any changes must be agreed in writing.

DEFINITIONS

For the purposes of this schedule, the following definitions apply. Should there be conflict between the definitions in this schedule and the Agreement, the Agreement terms shall apply.

"**Business Day**" means any day not being:

   a) a Saturday or a Sunday; or

   b) a statutory public holiday in England (including any regional public holiday applicable to the Catalyst office where the Services are provided),

"**Business Hours**" refers to the hours of operation, namely 8.00 am to 6:00 pm Greenwich Mean Time or British Summer Time during its occurrence, on any Business Day.

"**Change Request**" means a request in writing from the Client to Catalyst requesting an alteration to the services, service levels, or response times.

"**Hardware**" means any hardware that forms part of the system, or Catalyst-owned and operated hardware necessary for the operation of the system.

"**Hosting Provider**" means the organisation providing the infrastructure IT services on which the applications run.

"**Hosting Services**" means the services provided by the Hosting Provider.

"**Maintain**" means applying new code to a plugin annually or by request from the   upstream plugin repo. Does not guarantee functionality or compatibility for the plugin.

"**Maintenance Release**" means an update to an existing version of the application containing error corrections or minor functionality enhancements. A Maintenance Release is designated as a numbered service pack for the current version, with no change in the version number.

"**Major Point Upgrade**" means a change to the software that provides new functionality and may involve significant changes. The "Major Point" refers to the numbering system, e.g. version 2.4 to 2.5.

"**Minor Point Upgrade**" means a change to the software that rectifies issues in previous versions but doesn't change the functionality. The "Minor Point" refers to the numbering system used, e.g. from version 2.5.3 to 2.5.4. A Minor Point Upgrade may or may not include security fixes. Each Minor Point Upgrade includes all the changes from earlier Minor Point upgrades within the same Major Point version, e.g 2.5.4 includes the fixes from 2.5.1.

"**New Version Release**" means a new version of the application containing new features or enhancements to functionality. A New Version Release is designated by an increase in the version number. e.g. from 2.5.3 to 2.5.4.

"**Open Source Licence**" means any software licence identified by the Open Source Initiative as an open source licence by virtue of meeting its open source definition; and "Open Source" shall have a corresponding meaning.

"**Operating Environment**" means the hardware and/or software (including dependent Systems) that the System must continue to operate with, as specified in the Schedules.

"**Production Launch**" means the release of the Product into the production environment.

"**Product(s)**" means all parts of the Software and Documentation being supplied under the terms of this Agreement or in any subsequent agreement made between the parties to deliver Software and/or Services.

"**Project Plan**" means the project plan to implement the Services in the Schedules.

"**Representative**" means for the Client, the nominated representative who has the authority to represent the Client, and for Catalyst, a Director or any other representative as notified from time to time.

"**Response Time**" means the target time taken for Catalyst to acknowledge receipt of a service call and to begin remedial action.

"**Security Maintenance Release**" means an update to an existing version of the application, which contains code corrections to resolve security issues.

"**Service Rates**" means the rates charged for Services under this Agreement including the attached Schedules and Appendices

"**Soft Launch**" means the release of the Deliverables into a real production environment in parallel to the existing solution, for the purpose of observing and testing its performance.

"**Software**" means any software supplied by Catalyst that forms part of the system.

"**Support**" means the full alignment with the code as provided by the upstream project and applied by Catalyst as required at any time in the contract period due to a major, minor or security point update.

"**Support Services**" means the services to be provided by Catalyst to the Client for the support and maintenance of the System as detailed in **Schedule A** and **Schedule B.**

"**System**" means:
   a) System software, application software, hardware and equipment that houses and delivers the Services; and
   b) other software, hardware, equipment and premises owned or managed by Catalyst which is necessary to ensure the functioning of the System in accordance with the service levels.

"**Third-Party Supplier**" means any supplier other than Catalyst contracted by the Client to perform one or more services related to this Agreement, where cooperation or interaction with such supplier is reasonably expected or required for the proper performance of the Services.

"**Update Reports**" means reports provided to the Client at regular intervals summarising progress towards the resolution of critical issues.

"**WRMS**" means Catalyst's online help desk / Work Request Management System (WRMS) for the delivery of Catalyst's service and support obligations under this Agreement.

SCHEDULE A - COMPONENTS INCLUDED UNDER THIS SCHEDULE

AWS Infrastructure/ Hosting on Private UCL Virtual Private Cloud(s)

Catalyst will support and manage on behalf of UCL;

- Access and control of the Private Amazon Web Services (AWS) tenancy.

- All Catalyst designed, Catalyst implemented and Catalyst maintained Moodle hosting infrastructure/service provisions within the AWS tenancy.

- Terraform code, including suitable version control, for all AWS environments as provisioned and maintained by Catalyst and added listed within this schedule.

- Ongoing iterations of the AWS hosting infrastructure design/service provision as evolved by Catalyst AWS engineers over the lifetime of the partnership.

- Auto & scheduled scaling rulesets and parameters as agreed and amended through collaboration with UCL and Catalyst AWS engineers.

- A suitable production and staging environment (Virtual Private Cloud) upon which to deploy the Production and Staging instances of the Moodle software.

AWS infrastructure design diagram as shown in the technical documentation provided by Catalyst to UCL

Supported Software

Catalyst will support and manage on behalf of UCL:

- A Production instance of Moodle, utilising the **Core** codebase versions, as provided by the upstream Moodle Project and as upgraded by Catalyst once per annum to an agreed major point release version and periodically upon release of all minor point and security releases.

- A Staging instance of Moodle, utilising the **Core** codebase versions, as provided by the upstream Moodle Project and as upgraded by Catalyst once per annum to an agreed major point release version and periodically upon release of minor point and security releases.

- Updates, patches and amendments to the Moodle core codebase (as provided upstream by Moodle HQ). These may include core amendments by UCL and Catalyst, or the backporting of code from future versions of Moodle core as provided upstream by Moodle HQ.

- A master code branch, aligned to production at all times and available to UCL for cloning or mirroring as required.

Supported Integrations, Plugins, Third-Party code

Catalyst will maintain the following specific areas:

- Third-party and bespoke plugins applied to the Moodle codebase as requested by UCL and deployed to staging/production via UCL approval and deployment workflows.
  All third-party plugins will be maintained as submodules in the Catalyst Git Lab Repository to include full change history.

- Core changes to the core Moodle codebase (documented in Git), as required by UCL/Catalyst according to specific approval from both parties.

- A pair of dual connection, resilient Virtual Private Network (VPN) tunnels from the AWS staging and production Virtual Private Clouds (VPCs) to the UCL datacentres, for the purposes of secure connections to UCL on-premise services, including but not limited to Moodle Integration Manager (MIM), LDAP authentication and the 'Security Information and Event Management system(s) (SIEM). Catalyst have the responsibility for its support and management.

- Provisioned AWS services to support the Moodle Integration Manager (MIM) solution including a file directory service (EFS)

- integration to UCL's Security Information and Event Management system

- integration to UCL's on premise LDAP authentication services for the purposes of Moodle user account authentication.

- a Moodle Integration Manager AWS database instance provisioned within the Moodle Aurora Database instance and integrated to the UCL on premise MIM application 'Cake'.

Supported environments

Production Moodle environment

Catalyst will maintain the production Moodle instance

The Production instance will be available: **Moodle.ucl.ac.uk** – a domain controlled by UCL.
UCL will implement and manage a CNAME record to point at: http://prod.ucl.catalyst-eu.net
UCL will provide Catalyst with SSL/TLS certificates for this environment, to be provisioned via a Certificate Signing Request (CSR)t generated within AWS's Cloud HSM service

Staging Moodle environment

Catalyst will maintain a staging instance for the platform which will share full code alignment with the production instance(s).

Staging sites will be available**: Moodle-staging.ucl.ac.uk**

UCL will implement a CNAME record to point this domain to: - **http://staging.ucl.catalyst-eu.net/**
UCL will provide Catalyst with SSL/TLS certificates for this environment, to be provisioned via a Certificate Signing Request (CSR) generated within AWS's Cloud HSM service

Supported services

Schedule B sets out the Services.

General assumptions

- Catalyst will be able to deploy updates to supported code, infrastructure and Third-Party plugins as directed by UCL or as required in order to maintain our KPI obligations

- Catalyst will complete cursory code reviews of all code marked for deployment to the UCL Moodle environments, with any issues being flagged to UCL for consideration. Formal and documented code reviews may be procured by UCL through pre-purchased support hours or additional services.

- The Client will give Catalyst at least one hour's notice for any planned changes or maintenance that might impact upon our services so appropriate tests can be carried out, monitoring and alarm systems noted and on call engineers informed.

- Catalyst will be able to arrange for downtime according to the agreed process and notice periods to upgrade the infrastructure services as required. Suitable notice will be given of routine updates, but a critical security update may require a short-notice maintenance period.

Out of scope

Any components not explicitly listed in **Schedule A** are out of scope and are not covered under this Service Level Agreement.

Any issues arising as a result of third-party plugins/code, integrations to external tools-and-systems or compatibility issues with the core platforms as and when these are upgraded by Catalyst.

Any incidents or issues arising from elements that are deemed to be outside of Catalyst's control, including but not limited to:

- AWS London region (or any other AWS region) outages which impact upon the utilised AWS services.

- Public internet or DNS service failures.

- Moodle core code bugs or errors as incurred through the deployment of upstream code.

- All incidents or issues arising from third-party plugins, availability of third-party service end-points and UCL integration end-points.

- All incidents or issues arising as a result of core changes or amendments applied to the Moodle core codebase and/or plugins and incumbent core changes as directed by UCL.

SCHEDULE B - SUPPORT SERVICES

Introduction

This schedule describes the support services provided by Catalyst for the Client's System.

Scope of support services

The following items are in scope for Catalyst support services
- System monitoring, incident response and support
- Hardware / AWS Virtual Private Cloud Managed Services as provided by Catalyst
- Moodle application (code) and plugins as deployed by Catalyst
- Moodle system data (database and Filestore) as managed by Catalyst
- System Integrations as outlined in section xx
- Moodle backups and retention / disposal policy configuration in AWS.
- Service requests made via the Catalyst Work Request Management System and within the scope as agreed in section xx

System monitoring, support and Incident response

Catalyst will pro-actively monitor the Moodle services and applications for and on behalf of UCL, and respond to all incidents according to the tables shown below.

Catalyst team of certified AWS system engineers will provide 24/7 'Follow-the-sun' support through our operations in the Catalyst IT Europe and Catalyst IT Australia entities for all critical incidents.

All incidents, services and support requests will be actioned in line with the service levels outlined below.

Catalyst monitoring systems

Catalyst utilise a range of tools to monitor and notify of incidents or issues arising across the Moodle and AWS systems. These include but are not limited to;

- AWS Cloudwatch - native AWS monitoring suite of services

- Icinga - for monitoring of availability and performance

- Pagerduty - to notify on call engineers and senior staff to incidents

- ELK (Elasticsearch, Logstash, Kibana) - to ship, aggregate and analyse system logs

- Moodle plugins (Heartbeat, Lockstats, Catalyst tools) - to observe application behaviours

At time of launch UCL's New Relic will be included as part of the monitoring, this is a service owned and facilitated by UCL and is not part of the service suite provided or guaranteed by Catalyst. Catalyst reserve the right to alter and replace monitoring tooling, whilst ensuring that and equal/or improved level of monitoring and observability is always maintained.

Service levels

The table below sets out the service levels and associated response times that apply to all services supplied under this Agreement.

Priority	Description	Response
Critical	Problems with the System that causes the application and associated database data to be inaccessible. The call should be initiated only by the service owner or a delegated staff member.	For a Critical problem with the UCL managed AWS cloud infrastructure or Moodle System, Catalyst will acknowledge receipt of the call within 1 hour and begin work on its resolution immediately, working continuously until remedied (or a suitable workaround restores the services temporarily)
High	Situations that cause a part of the system to stop operating correctly, but do not interrupt the core functions of the System.	Catalyst will acknowledge receipt of the call within 4 hours during Business Hours, or within 4 hours on the next Business Day if received outside of Business Hours, and begin work on its resolution as soon as possible.
Medium	Issues that affect one or a few users and do not significantly impair the functioning of the System or interrupt the users' core functions. User administration and content creation support.	Catalyst will acknowledge receipt of the call and respond to the service request within 2 business days (during business hours only) to notify of steps being taken and negotiate a resolution or response timeframe with the Client.
Low	Requests for information, hardware and software support questions and anything else.	Catalyst will acknowledge receipt of the call within 5 business days (during business hours only) and negotiate a resolution time or response timeframe with the Client.

Hours of Service

Priority	Description	Normal Business Hours (8am-6pm UK time)	Extended Business Hours (UK or Aus Business Hours)	After Hours (weekends)
High Priority Incidents	Affecting system or critical business function(s) which is affecting multiple users and impacts their ability to carry out work in their normal manner (service is down; course pages will not load; major caching issues; fatal coding errors)	✓	✓	✓
All other Incidents/ service requests	Affecting one or multiple users but not preventing them from studying or using the courses substantially as intended (intermittent page load errors, minor caching issues, php warnings).	✓	-	-
System Patching	Applying security updates to any Production systems.	✓	✓	-
Software Deployments	Installation of application updates, plugins or features on Production systems.	✓	✓	-

(*) All after hours work will be carried out by Catalyst's Asia/Pacific offices.

When Additional Services for non-critical issues are required by the Client, outside of Business Hours, a higher charge rate will apply (see **Schedule E**, Services Charges).

AWS infrastructure managed services

Catalyst will provide full management of AWS services required to maintain a stable and acceptably high performance Moodle system and associated elements, including;

- Moodle hosting architecture and associated AWS services as required.
- Integration points
  - LDAPs on premise IDP via the AWS VPN.
  - MIM DB in AWS aurora integrated to the on-premise PHP application 'Cake' via the AWS VPN
  - MIM FileServer integration for receipt of CSVs to ingest to the Moodle system(s)
  - Log shipping integration via VPN to the DCU on premise SIEM system.
- Management and maintenance systems (Moodle Cron, backups, jump hosts and caches)
- Annual application lifecycle requirements (patching, upgrades and deployments
- Monitoring and observability dashboards within AWS Cloudwatch, ELK/Kibana.
- ECS service and container build as required to deliver Moodle and associated services (e.g. ClamAV, STACK).

Moodle platform managed services

Code base Management

Catalyst will manage the Moodle codebase(s) on behalf of UCL, maintaining best practice code management systems and processes and ensuring strict change control.

Moodle staging branch

Catalyst will maintain a staging branch of UCL's code to include all plugins and third-party code amendments to be managed within the Catalyst on premise Git Lab instance.

A mirror of the branch head to be made available to UCL at all times to enable local cloning and pulling of code.

Master / single source of truth for code will remain at UCL.

Moodle production Git Lab Branch

Catalyst will, as directed by UCL, merge the staging branch to the production code branch in line with the agreed release windows and after formal notice is received via a **'Production Ready'** update on a WRMS release ticket.

Moodle Major Point core Moodle upgrades

Catalyst will perform a 'major-point' upgrade of the Moodle core codebase a maximum of once per annum within each annual contract cycle.
The upgrade is expected to be within the spring/summer period April – August each year. Upgrade project dates may be altered by agreement of both parties with suitable notice.

It is agreed that the upgrade code works, including testing, will be completed by the UCL Moodle team and provided to Catalyst via a merge request. Upon receipt, Catalyst will merge and deploy the code to the AWS staging environment ready for final testing and approval by the UCL team.

Final approval to deploy to production will be given by marking the Work Request as **'Production Ready'.**

At all times Moodle must be either;

- Maintained upon an in-support version of Moodle LMS as provided upstream

- Kept within support via backporting of support fixes from in support versions where an annual upgrade is not progressed. Additional fees may be incurred to support the backporting of patches

Patching and code/plugin updates

Maintenance/ deployment window

Catalyst will ensure deployments are carried out during the agreed maintenance window, bi-monthly and immediately after Moodle core patch releases. Deployments will take place during early hours periods (01:00–04:00 GMT) on weekdays within 48 hours of formal sign off being received, but with a minimum of 24 hours of notice (approval) from UCL.

The Client's go-ahead is required for any deployments to take place. The go-ahead is communicated by updating the related Work Request and changing its status to "**Production Ready**". This is required a minimum of 1 working day (24 hours) before the targeted deployment window. Requests for emergency deployments, outside of this agreed period may incur additional service charges or utilise pre-purchased support hours.

The only exception is critical security releases which will be deployed on the basis of their severity. For all Moodle releases deemed critical according to the following decision flow, Catalyst will notify UCL of the intention to release the patch and perform the patch deployment immediately outside of 'Business Hours' in the next available 'extended business hours' window.

Catalyst will notify UCL of any critical releases and present our proposed release time/window to be as soon as reasonably possible using extended business hours. The release of the critical security patch will proceed at the stated time unless explicitly paused or a delayed by UCL.
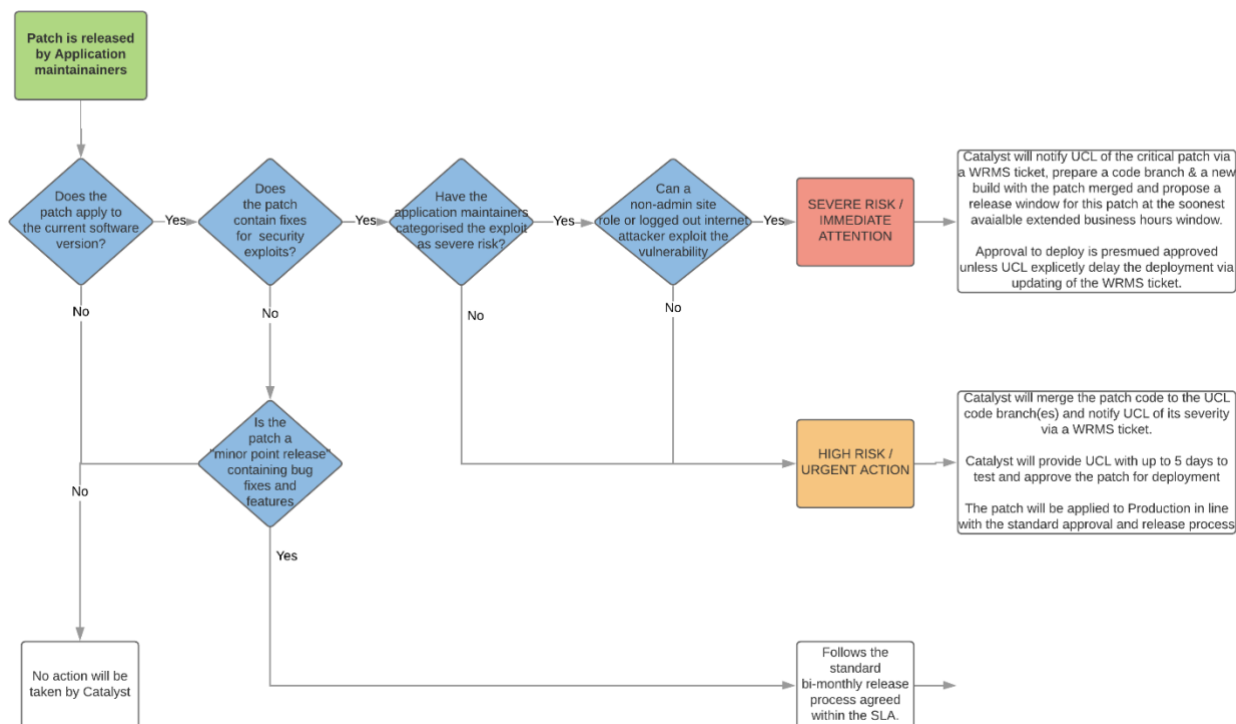
As part of service Catalyst will deliver six (6) patch and update releases per annum, to be completed bi-monthly aligned with the standard Moodle minor point release dates. At these release dates, Catalyst will apply both minor point or security patches provided by Moodle HQ, latest plugin versions from upstream – and any other code as directed by UCL.

All standard (non-critical) patch and code update releases as defined above will require a minimum of 24 hours of notice to proceed, order to prepare and complete the build and deployment process. It is expected that UCL production Moodle releases will occur during the night on Wednesday evenings/Thursday mornings immediately after the scheduled Moodle releases as outlined below. Any changes to Moodle upstream release schedule will alter the release dates for Catalyst and UCL with no impact on this SLA or fees.

Moodle Release schedule

Major (eg. 3.x)	6 monthly	Second Monday of May and November
Minor (Point) (eg. 3.x.y)	2 monthly	Second Monday of July, September, November, January, March and May

Catalyst /UCL minor point and patch release schedule (example)

1. Moodle Minor release Monday morning on stated weeks

2. UCL prepare a build, including all upstream modules and test on internal test environment(s).

3. UCL provide Catalyst with a final build code version by pushing the latest code to the Catalyst repository

4. Catalyst prepare and deploy the code to the AWS UCL Moodle Staging environment

5. UCL perform final testing and notify the production release is authorised by updating the release ticket to '**Production ready**'

6. Catalyst schedule the release to be performed during the evening of the following day (24 hours' notice) by the Catalyst IT Australia system engineers between 01:00 – 04:00 GMT.

7. Minor point or security update is complete.

In the event that a critical Moodle security release is identified and an emergency release is required, Catalyst will perform this as part of service for Moodle core only. Critical security patches will be deployed **as soon as reasonably possible after UCL confirm 'Production Ready'**.

Any additional requests for deployment not within the scope outlined above will be facilitated using pre-purchased support hours or additional services (fees) as directed by UCL.

Backup Management – for *Production Instance Only*

Backup and disaster recovery
Catalyst are committed to the safety and security of the service we provide to our clients with regards to a data retention and audit compliance, but also to ensure readiness and resilience in the unlikely event of a disaster occurring.
Backups will be stored within the UK/ EU for the purposes of GDPR compliance.

Full site backup
Catalyst will configure and maintain a backup regimen in line with the following schedule and retention and disposal will be as outlined below.

Backup schedule	Retention period
Nightly full site backups (every 24 hours)	35 days
Weekly full site backups (every 7 days)	65 days
Monthly full site backups	For life

Database restores
Point in time recovery, using AWS Aurora database restore options, will be available for up 28 days. This enables restoration of the site database to any specific moment over the previous 28 days.

Account Management

Catalyst will provide UCL with account management services and a dedicated account manager.

Account management services will deliver:

- Monthly service review reports shared with key stakeholders at UCL at least 1 day (1 working day) prior to account meetings. This report will focus on the previous month's service delivery.
  This PDF report will be delivered via the WRMS system and will contain the following data:

  - Number of WRMS tickets
  - Average page load times for the service during the month
  - Deployments and updates completed
  - Unplanned outages or service incidents incurred

- A monthly account meeting to discuss:

  - Service performance and KPI metrics
  - Work completed in previous month
  - Work currently in progress
  - New work expected in coming month
  - Technical and architectural review or alterations as required

- A six-monthly contract review and strategy meeting to discuss:

  - Major annual works (upgrades and maintenance planning)
  - Strategic alignment
  - Project scoping and considerations
  - Contract and change requests

Catalyst will provide UCL with access to a dashboard to allow monthly reviews of SLA service from work requests (WR) tickets.
UCL will initially be given a guide and an introduction to the dashboard and WRMS systems.

Example Service Dashboard view
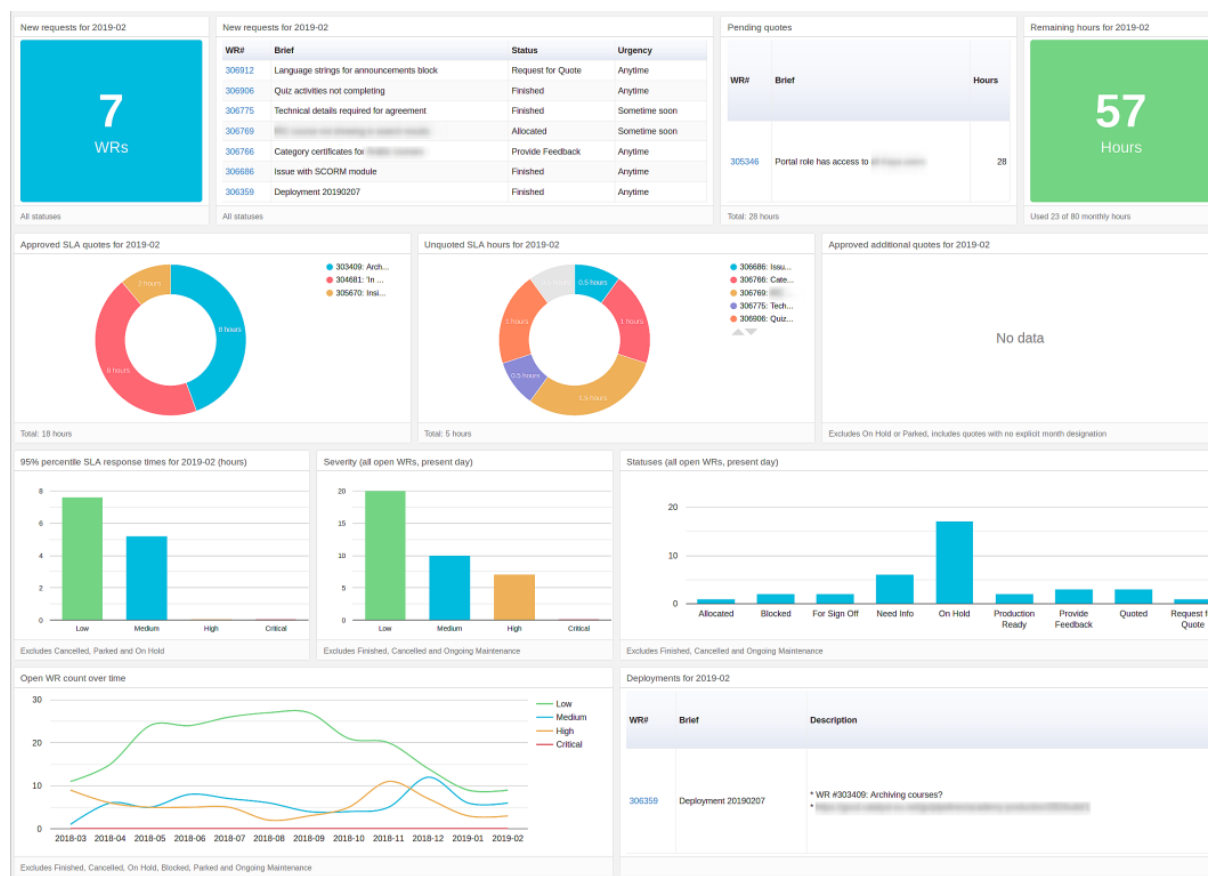
Additional Services – pre-purchased hours

University College London have agreed to 30 hours of pre-paid support per month. Additional hours can be purchased if necessary, as outlined in **Schedule E**: Service Charges

Where a new Work Request is made, the Client authorises up to four (4) hours of effort/chargeable or pre-procured service time/hours may be consumed in responding to the request (investigation, solution & identification/ delivery). Should the Work Request require further time, Catalyst will provide a time estimate quote on the Work Request and seek Client approval to proceed.

Additional services – pre-purchased hours may be utilised by UCL for Catalyst technical and support services and are guaranteed under the service levels defined above.

Services in scope for pre-purchased hours

Moodle cloud managed services and performance optimisation – AWS engineer services

Catalyst services are available to manage and amend AWS hosting services and architecture – including scaling and new service provision - according to the requirements of your Moodle VLE and business initiatives, ensuring it is running at its optimum cost and performance whilst being responsive and flexible to the changing needs of the business and its stakeholders. Services in scope for support hours include:

- AWS services management and response to change requests
- Requests for additional deployment services
- Analysis and investigation of suitable AWS services for new initiatives
- Analysis, investigations and response to incidents arising from AWS infrastructure issues
- Remedial actions in response to incidents arising from AWS infrastructure issues
- Deployment of or running of scripts and queries against live Database or AWS services

Moodle configuration and application support – Product Specialist services

Our team of Moodle Product Specialists are available on demand to support configuration of your Moodle platform. Configuration services may also utilise our System administration expertise to configure technical elements or integrations to tools and services. Services in scope for support hours include:

- Moodle configuration support
- Moodle assistance with activities and features
- Response to queries relating to Moodle use cases
- Plugin analysis and considerations in response to requirements shared

Software developer services

Our team of Software Developers are available to support you in developing exceptional tailored solutions to your functional and technical requirements. Services in scope for support hours include:

- Bug investigations and resolutions
- Code merge and management services (Git)
- Third-party code and plugin reviews (security, performance and sustainability)
- Front end theme code fixes and tweaks (under 1 day of effort)
- Plugin analysis and advice regarding UCL requirements.
- Moodle plugin and code deployment preparations and build generation

Reporting and analytics services – Moodle analytical and data services

Catalyst team of data experts and analysts are available to perform data analysis services and provide business and system insights for the support and benefit of UCL stakeholders in audit requirements, decision making and strategy/planning. Services in scope for support hours include:

- Custom report generation

- Data extraction and presentation according to requirements

- Custom report analysis and requirement documentation

Course restore process – from database backup

Agreed backup process for a course (where a need exists to return a course or courses to a previous point in time) is to:

- raise a Work request in Catalyst WRMS system
- Catalyst perform a local DB restore (on developers' machine)
- Catalyst extract course (including files from S3)

- Catalyst present the course backup .MBZ file to UCL.
- UCL complete the course restore as required.

This is a low urgency request in most cases (5 days average turn around) and incurs 8 hours of effort from SLA hours (or additional funds where SLA exhausted).

Services out of scope for pre-purchased hours

The following services **are not included in the scope** of the pre-purchased services package:

- Training services
- Software development projects and new feature development works
- New AWS architecture implementation or significant amendments to hosting infrastructure requiring 'days' of effort.
- Consulting and solution design/architecture services
- Theming, brand and design workshop services
- All 'workshop' and business analysis services.

SCHEDULE C - KEY PERFORMANCE INDICATORS AND SERVICE CREDITS

Catalyst will perform the services at all times with utmost professionalism and utilising our collective expertise and experience.

In doing so Catalyst shall:
- monitor its performance of each of the Services by reference to the Service Level(s) for that Service and shall send the Customer a report detailing the level of service which was achieved on a monthly basis – reported in the monthly account meetings.

- provide the Services in such a manner that the Service Level for each Service is achieved at "Green" level in accordance with the table below.

System performance – page load speed

Catalyst will monitor the performance of the Production Moodle system with a measure of page load time as a metric. In order to ensure the performance metric is measured consistently and with no outside impact, this will be measured inside the AWS VPC only (not via any internet or network/VPN connections.

- Catalyst commit to deliver an average page load speed of under 2 second at least 99.5% of the time during (excluding planned maintenance windows)– when measuring the Catalyst heartbeat page load time from the AWS load Balancer – (inside the VPC only)

Service Credits

A service credits regime shall apply to deal with any persistent service failures, this section will set out how service credits will apply.

Table 1 – Key Performance Indicators

No.	Key Performance Indicator (KPI)	Service Level	Service Credit
1	Uptime/availability of the Moodle production service	99.9% (excluding planned maintenance)	4% applicable after 3 months of failure to meet the service level
2	Page Load Time	Under 2s average during the reporting month	4% applicable after 3 months of failure to meet the service level
3	Response to service requests	According to the times committed in the severity table	4% applicable after 3 months of failure to meet the service level

CATALYST

Table 2 - Service Credits Process (This is a rolling process; dates are for illustrative purposes only)

Reporting Period	KPI	Process
Month 1 (1 Sept)	No failures	- Supplier provides report of all KPIs and service levels achieved in the preceding month. - No service credits applied if all service levels are met.
Month 1	KPI failure(s)	- Supplier provides KPI failure report including causes and remedial plan for each KPI failed. - No service credits applied in Month 1.
Month 2 (1 Oct)	KPI failure(s)	- For KPI failures that BOTH parties agree have been resolved. The KPI failure report will close and no service credits will apply to failures resolved by Month 2. - For KPI failures not resolved by Month 2, supplier will provide a report on the cause, the actions taken to resolve the failure, and a plan to resolve the failure. - No service credits applied in Month 2.
Month 3 (1 Nov)	KPI failure(s)	- For KPI failures that BOTH parties agree have been resolved. The KPI failure report will close and no service credits will apply to failures resolved by Month 3. - For KPI failures not resolved by Month 3, supplier will provide a report on the cause, the actions taken to resolve the failure, and a plan to resolve the failure. - Service credit set out in Table 1 will apply. Supplier may provide reduction in subsequent month's invoice, or credit note to the value of the service credit.
Month 4 (1 Dec)	KPI failure(s)	- For persistent KPI failure(s) since Month 1, a service credit will apply monthly until it is resolved. Both parties must agree that the KPI failure is resolved. - Supplier will continue to report on cause, actions taken and plans to remedy the persistent failure.
Month 4	No failures	- For KPI failures that BOTH parties agree have been resolved. The KPI failure report will close and no further service credits will apply to failures resolved by Month 4.

- The KPIs set out in Table 1 will apply at the commencement of the services. The KPIs may only be amended with agreement from both parties.
- Service credits shall have a maximum value of 20% of the Operational Services Charges set out in **Schedule E.**
- Table 1 sets out how the service credits are apportioned between the KPIs.
- Table 2 sets out the process of how the service credits are applied. Any changes the process must be agreed in writing by both parties.
- UCL confirms that it has taken the Service Levels into account in agreeing the level of the Charges. Both parties agree that the Service Credits are a reasonable method of price adjustment to reflect poor performance.
- Where the Supplier wishes to carry out any maintenance to the Services (other than Emergency Maintenance), it shall ensure that the timing of the planned maintenance as otherwise agreed in writing with the Customer's Representative at least 1 Working Day in advance once agreed with the Customer's Representative the planned maintenance (which shall be known as "Permitted Maintenance") .The Supplier will be allowed to book a maximum of one hour Service Downtime for Permitted Maintenance

in any one Service Period. For the avoidance of doubt Permitted Maintenance shall not exceed 1 hours per Service Period and will be carried out during the extended business hours maintenance window – wherever possible.

- The Supplier shall carry out any necessary maintenance where it reasonably suspects that the Services or any part thereof has or may have developed a fault. Any such maintenance shall be carried out in such a manner and at such times so as to avoid (or where this is not possible so as to minimise) disruption to the Services.
- For the avoidance of doubt, to the extent that the Supplier would have been able to achieve the Service Levels in accordance with this Schedule but has failed to do so as a direct result of a Customer Cause or Force Majeure Event, and both parties agree, the Supplier shall be relieved of such performance requirements as set out in this Schedule.

SCHEDULE D - SUPPORT PROCESSES

Requests for support

Where the Client requires Catalyst support, the Client's authorised staff should create a work request or raise an issue by logging the request in Catalyst's Work Request Management System (WRMS). The Client's authorised staff will have direct access to WRMS to check request progress.

Where the issue is deemed Critical by the Client, in accordance with the table in **Schedule B**, the Client may also call the Catalyst support telephone line. Catalyst and the Client will act reasonably in assigning each issue a severity level as specified in the table in **Schedule B**.

If the Client has a Critical support request for work not covered within the ongoing service charge, and the Client requires work to be performed outside Business Hours, the "outside Business Hours" rate shall apply (see **Schedule E**). Examples include:

- issues with third-party code, features or services.

- integrations or services which are outside of the scope of support for this Service Level Agreement.

The usual approval process will be:

- For requested work estimated to require 4 hours or less, the Client's approval will be deemed to have been given, unless the need for a quote has been specified.
- For work estimated to require more than 4 hours, Catalyst will obtain approval from the Client's authorised staff prior to proceeding.
- Where the duration of the work cannot be predicted, and the situation requires Catalyst's immediate intervention, Catalyst will proceed with the work immediately, with approval being sought as soon as practicable.

All work performed will be logged in WRMS.

For support calls during Business Hours, a minimum charge of one hour at the standard rate applies. For support calls outside Business Hours, a minimum charge of one hour at the after-hours rate applies.

Contact Details
Support hotline: 01273 929450 / Emergency 0330 0881797
Create a new work request at https://wrms.catalyst.net.nz

Contacts and escalation

Catalyst escalation points

| Order of Contact	Name / Role	Contact Details
1	Mia Finnemore / Service Delivery Coordinator	mia.finnemore@catalyst-eu.net 01273 929 450
2	Michiel Dethmers / Head of Technology	Michiel.dethmers@catalyst-eu.net 01273 929 450
3	Joey Murison / Managing Director **Catalyst Managing Director**	Joey.murison@catalyst-eu.net 01273 929 450
4 Accounts	Catalyst Accounts Group for PO and invoice queries	accounts@catalyst-eu.net

Client escalation points

Order of Contact	Name / Role	Contact Details
1	James Faucher/Digital Education Services Manager	j.faucher@ucl.ac.uk +44 20 3549 5123
2	Alistair Spark/Service Operations Manager	a.spark@ucl.ac.uk +44 20 3549 5037
3	Anisa Patel/Digital Education Services Specialist	Anisa.patel@ucl.ac.uk +44 20 3108 8889
4	Robert Silk /Head of IT Supplier and Asset Management	r.silk@UCL.ac.uk

Catalyst Escalation Process

If a WRMS ticket is raised and the response is longer than response time agreed in agreed the Service Level section of **Schedule B**, contact your Account Manager.

If you have no response from the Account Manager about the issue, you can contact the next person in the escalation table above, in order.

Catalyst Escalation Process
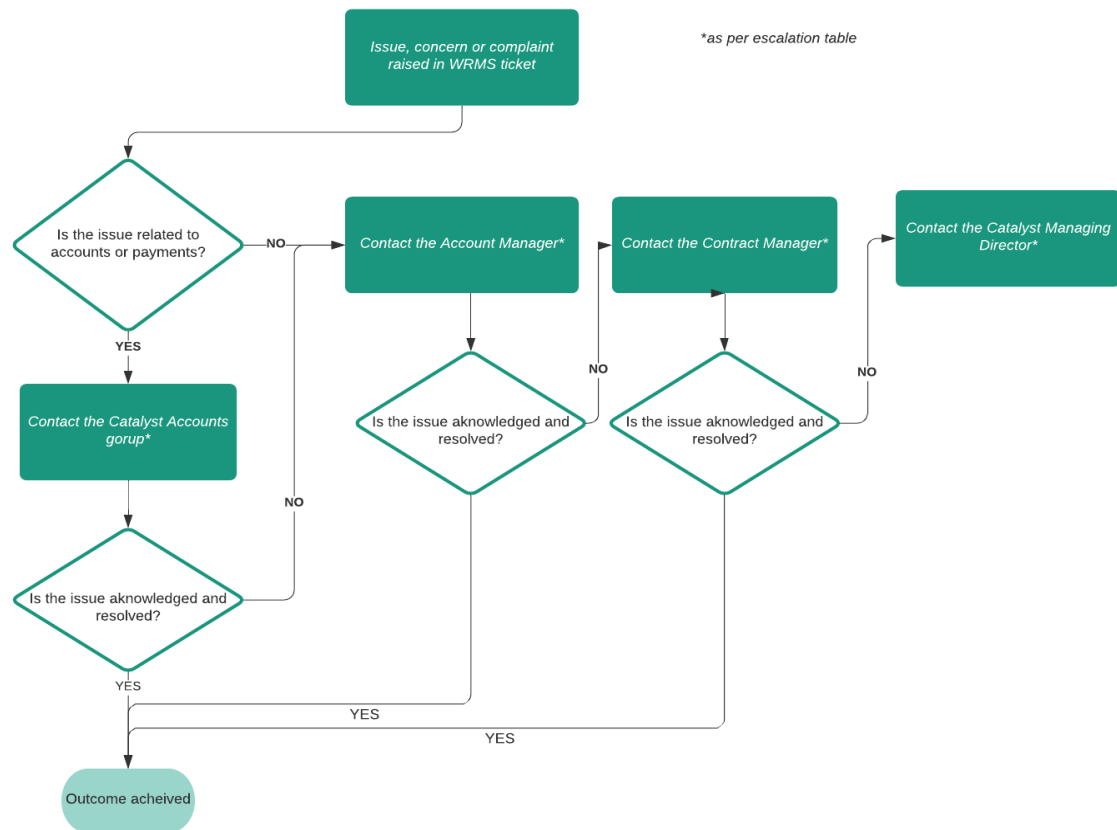
Logging a Work Request (WR) in WRMS

For critical, non-critical or information requests:

a) Access support at https://wrms.catalyst.net.nz

b) Create a new work request by clicking on the 'New Request' menu link.

c) In the 'Brief' text box, enter a short title for the problem/request.

d) Choose the appropriate code description for 'Type'.

e) Select an 'Urgency' rating.

f) Select an 'Importance' rating.

g) In the 'Details' box, enter a full description of the problem/request and attach any supporting documents or screenshots where possible ('Add File').

h) Under 'Interested Users' add any other staff who you would like to receive email updates on this WR.

i) Click the 'Create' button (or 'Update' button, if changing existing WR).

Notification of problem resolution progress

Following their assessment or resolution of the problem, Catalyst will notify the Client by updating the status of

the WRMS work request to outline steps being taken or progress made.

SCHEDULE E - SERVICE CHARGES

Operational Services charges

Service	Costs (£GBP excl VAT) per Annum
24/7/365 SLA and AWS Cloud management services	£28,800
Managed Moodle Application services • 24/7/365 SLA and response • 1 X Annual major point upgrade of Moodle core • Patching and maintenance of the Moodle core application	£33,600
Moodle Integration Manager monitoring and support	£3000
Plugins support (106 X plugins)	£8,800
Additional periodic deployment works (6 x per annum) - Bi-monthly deployments in line with Moodle releases - Full updating of third-party plugins - Out-of-hours deployment (Australia team led) - Planning and management for deployment windows and sign off.	£6,000
Dedicated Account Manager service	£14,080
Support and Additional Services time – 30 hours per month*	£36,000
Total per annum (EXC VAT)	**£128,240**
Total per month (EXC VAT)	**£10,686,67**

*Unused Additional Services hours at the end of each month are forfeited to Catalyst.

Additional Services - chargeable

Where the Client requests additional services which are outside the scope of support, or when Catalyst recommends additional services and the Client agrees, Catalyst may provide those services at the time and materials rates and conditions set out in the Agreement.

Examples of Additional Services:

- Integration with wider Client or third-party systems.
- Code customisations for new or changed functionality.
- Changes or updates to the site theme, plugins or third-party items.
- Custom module/plugin developments.
- Assistance to third-parties conducting security reviews of supported components.
- First level user support, i.e. how to use or administer the system (Catalyst may engage partners to assist).
- User training and documentation.

Additional charges

Where the Client requests Additional Services, Catalyst will charge the rates as per Schedule 2 of the Agreement, or the following hourly rates:

£110 per hour, minimum 1 hour, during Business Hours.

£220 per hour, minimum 1 hour, outside Business Hours.

Rate Card as per Schedule 2 of the Agreement

The Services	RATE CARD (Per day)	
	Technical Service rate (per day)	Consultancy/Workshop rate (per day)
Moodle developer/development/code review	800	1000
Moodle and AWS System Administrator / Engineer	880	1200
Development Operations (Dev-ops) specialist	880	1200
Theme design and development services	800	1000
Testing and test automation services	800	1000
Mobile-app development	880	
Moodle data analytics, reporting and insight services	800	
Product Specialist support services (Application config' and documentation)	800	
Training and professional development services		£1400 per day (max 8 attendees) *Includes preparation of materials etc.*
Project Management services	15% of technical services fees	

Appendices

1. Critical Incident response and resolution process