XMA

Premium
Education Partner

CASE STUDY

Keeping learning connected:

How Glasgow City Council uses Mac mini caching servers to support its 1:1 iPad deployment

Glasgow
CITY COUNCIL



Supporting learning at city-wide scale

Glasgow City Council, Scotland's largest local authority with 80,000 young people across over 300 establishments, completed the UK's largest 1:1 education deployment.

The deployment supports around 55,000 students and over 6,500 staff across 330 sites. More than 61,000 iPads provide equitable access to digital learning, with shared iPads supporting younger pupils who use devices communally.

At this scale, a device refresh creates a significant network challenge. Without the right supporting infrastructure, tens of thousands of iPads downloading operating-system updates, apps and other content could place enormous pressure on schools' external internet connections.

Any resulting slowdown would affect not only the new devices, but also the other devices using the same network.

Largest
1:1 education deployment in the UK

61,000
iPad devices

330
Sites

223
Mac mini caching servers





The Challenge

The council needed to complete the refresh at pace while protecting day-to-day learning. Pupils receiving new devices had to be able to set them up immediately, while every other class in the school continued to use the network as normal.

The timescale for this ambitious project was to be completed in less than one academic year.

By combining 223 Mac mini caching servers with Jamf mobile device management and coordinated network monitoring, Glasgow City Council refreshed more than 61,000 iPads at exceptional speed without compromising connectivity or classroom learning.

Mac mini at the heart of the network

Glasgow City Council has used Mac mini as a caching server since 2017. In August 2025, it refreshed its Mac mini estate, installing 223 devices to create a dependable local content-delivery layer for its iPad deployment.

Content caching reduces the amount of Apple software schools must retrieve from the internet. When an iPad requests eligible content, such as an app or software update, Mac mini downloads and stores it locally. When another device requests the same eligible content, it can be served directly across the school network instead of being downloaded again.

This preserves external bandwidth for teaching, administration and other digital services while delivering frequently requested Apple content efficiently over local Wi-Fi. The same approach supports both 1:1 and shared iPad environments.

Each Mac mini is managed through Jamf, enabling operating-system updates to be deployed centrally.



30
Schools

30,000
Devices

6
Weeks

Enabling a faster, fairer rollout

Confidence in the Mac mini caching infrastructure allowed Glasgow City Council to set an ambitious refresh timescale: completing the programme in less than one academic year.

A conventional rollout could have taken most of a school year to cover the city's 30 secondary schools alone, leaving some pupils waiting months longer than others. Instead, XMA supported Glasgow to deploy iPads to the same year group across every secondary school in the same week, speeding up the process and enabling a faster rollout.

Approximately 30,000 devices were processed and deployed across secondary schools within a six-week period, before the rollout extended across primary and additional support for learning schools / sector. This delivered parity across the city: pupils received their new iPad at the same time, regardless of their school or community.

At school, each device connected through Wi-Fi to local Mac mini caching and, where needed, Apple's services. Other year groups continued to learn using the same network throughout the deployment.



Measurable reductions in network demand

The Mac mini deployment performed reliably throughout the refresh. Glasgow reported no saturation of external internet connections, no significant network-performance issues and no disruption to teaching in primary or secondary schools.

Weekly monitoring shows the difference local caching makes. At one school, Mac mini downloaded 5GB of content from the internet and served 495GB to client devices. At another, 3.5GB downloaded served 126GB to client devices.

Without Mac mini, that repeated traffic would have travelled through each school's internet connection. By downloading content once and distributing it locally, Glasgow avoids unnecessary external demand and preserves capacity for the wider school community.

Lorna Goldie, Education Services' Head of Resources and service lead for the project, said:

The servers are configured to wipe every weekend to free storage and remove older content that may no longer be needed or current.

This ensures the servers begin each week with space for the apps and updates schools request most frequently. The cache then rebuilds automatically as devices access content, maintaining efficient local delivery without requiring ongoing manual.



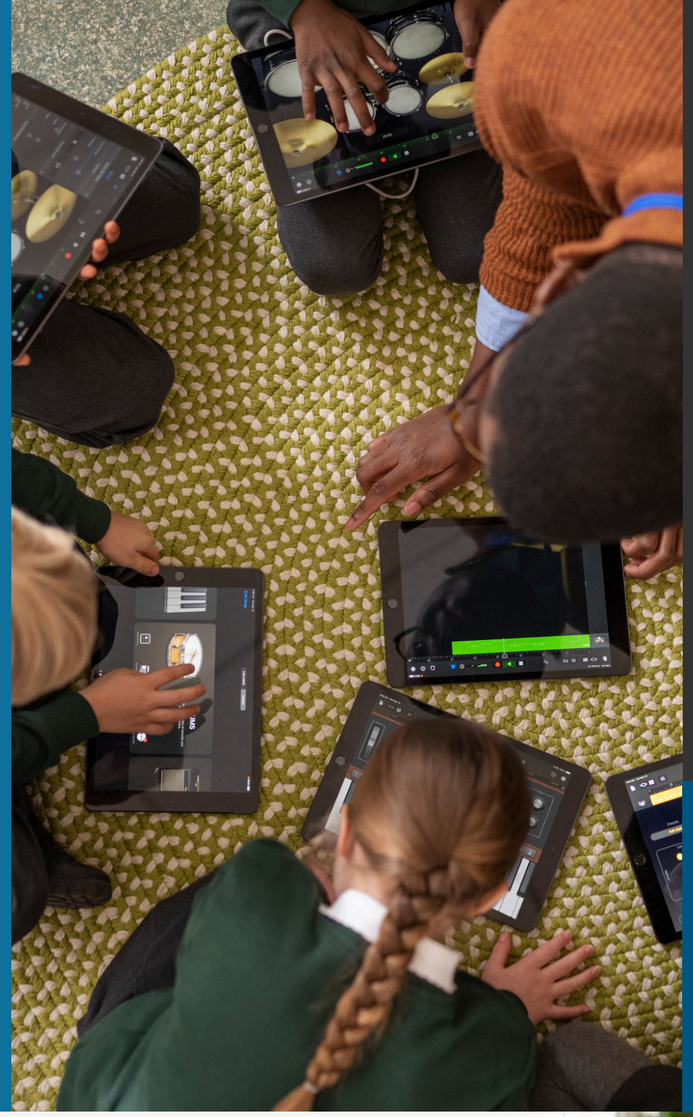
> "Refreshing this many devices across Glasgow's schools required careful planning and most importantly, robust infrastructure. The Mac mini caching servers allowed us to download content once and distribute it locally, significantly reducing pressure on school internet connections while accelerating deployment.
>
> Crucially, we delivered the refresh without causing any disruption to learning and teaching. The caching servers have exceeded our expectations and have been instrumental in the success of the programme."

Lorna Goldie
Education Services' Head of Resources and service lead for the project.

Managing the refresh

Alongside the technical deployment, XMA managed the significant logistical challenge of recovering legacy devices and distributing more than 61,000 new iPads across Glasgow in the 25/26 term - ensuring every device reached the right school at the right time and the legacy devices were reused as opposed to being sent to a landfill as waste.

By extending the useful life of these devices instead of sending them to landfill, the programme is estimated to have avoided around two million kilograms of carbon emissions, contributing to Glasgow City Council's net-zero and circular-economy ambitions and demonstrating the significant environmental benefit of a circular approach to technology refresh.



A dependable foundation for digital learning

Mac mini may operate behind the scenes, but its Apple integration and central management provide a practical way to distribute content locally across Glasgow's large school estate.

223 Mac mini caching servers and coordinated network monitoring enabled Glasgow City Council to refresh more than 61,000 iPads at exceptional speed without compromising connectivity or classroom learning.

The result is a scalable model in which Mac helps the council protect its network investment and keeps digital learning available when schools need it most.

> Glasgow continues to lead the way in digital education, ensuring technology benefits every learner and is seamlessly integrated across our pedagogy and vision for the city's future.
>
> **Councillor Elaine McSporran,**
> City Convener for Education and Early Years.

Considering an Apple deployment across your school or local authority?

Speak to an Apple expert at XMA today to find out how we can support your organisation with digital transformation.

Contact us: 0115 846 4000 | enquiries@xma.co.uk | www.xma.co.uk

