Supporting Information

Figure S1: Cyclic voltammetry of [Mo₂(cp)₂(µ-SMe)₃(µ-η¹⁻N₂HPh)]⁺, 1-H⁺ (ca 0.8 mM) in thf-[NBu₄][PF₆] (vitreous carbon electrode, v = 0.2 V s⁻¹).
Figure S2: Cyclic voltammetry of [Mo₂(cp)₂(μ-SMe)₃(μ-η¹:η¹-HN₂Ph)]⁺, (present essentially as 2-H⁺) formed in situ from 1-H⁺ (ca 0.8 mM) (see figure S1) in thf-[NBu₄][PF₆] (vitreous carbon electrode, ν = 0.2 V s⁻¹).
Figure S3: Eyring plots of kinetic data for the $\mu$-$\eta^1 \rightarrow \mu$-$\eta^1$ isomerization of $[\text{Mo}_2(\text{cp})_2(\mu$-$\text{SMe})_3(\mu$-$\text{N}_2\text{Ph})]$ in thf (▲) and in CH$_2$Cl$_2$ (■); the lines represent the least-square plots in thf (—; $R^2 = 0.998$) and in CH$_2$Cl$_2$ (- - -; $R^2 = 0.999$).
Figure S4: Cyclic voltammetry of $[\text{Mo}_2(\text{cp})_2(\mu-\text{SMe})_3(\mu-\eta^1-\text{N}_2\text{Ph})]$, 1 (1.2 mM) in thf–[NBu$_4$][PF$_6$]. Curve b) shows the characteristic redox processes of the diazene complex 2-H$^{2+}$ (arrows); that the reduction peak around $-1.6$ V arises from oxidation of 1 is shown by its absence in the negative-going scan ($T = 18^\circ$C; vitreous carbon electrode; $v = 0.2$ V s$^{-1}$).
Figure S5 : Cyclic voltammetry of $\text{syn-}[\text{Mo}_2(\text{cp})_2(\mu-\text{SMe})_3(\mu-\eta^1:\eta^1-\text{N}_2\text{Ph})]$, 3 in CH$_2$Cl$_2$-[NBu$_4$][PF$_6$] at –46°C showing the reversible (anti) $2^{2+}/2^+$ couple at a potential slightly less positive than the onset of the oxidation of $3^+$ ($\nu = 0.1$ V s$^{-1}$; vitreous carbon electrode).